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AN INVESTIGATION INTO THE EXPERIENCE OF DESIGNING

VOL. 1 of 2 (Main Text)

Nicholas Roland Spencer

PhD

2008

AN INVESTIGATION INTO THE EXPERIENCE OF DESIGNING

VOL. 1 of 2 (Main Text)

Nicholas Roland Spencer

BA (Hons) Design for Industry

A thesis submitted in partial fulfilment of the requirements of the
University of Northumbria at Newcastle for the degree of Doctor of Philosophy

Research undertaken in the School of Design

November 2008

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Abstract

Cross (1999 & 2006) describes a taxonomy of the field of design research, stating that there are three main categories, based on people, processes and products:

- Design epistemology – study of designerly ways of knowing;
- Design praxiology – study of the practices and processes of design;
- Design phenomenology – study of the form and configuration of artefacts (Cross, 1999: 6).

Cross highlights that design is a socio-cultural activity and therefore the description of designing cannot be complete without taking the opinions and experiences of designers into account, rather than just studying the objects and processes of their work.

Dorst (1997: 19) argued that design researchers have paid insufficient attention to the experience of designing and that by improving our knowledge of this phenomenon a more complete account of design activities would be achieved. If design researchers can develop a more comprehensive account of design activities it will contribute to bridging the gap between design theory and design practice.

In design methodology there has developed two fundamentally different ways of approaching design, formalised into two paradigms: ‘rational problem solving’ (also known as technical rationality) (Simon, 1969) and ‘reflective practice’ (Schön, 1983 & 1987). Simon defined designing as an instrument of rational problem solving where, in its best and purest form, it is a process of optimisation. Within the paradigm of rational problem solving, problem solvers (designers) are goal-seeking information processing systems, operating in an objective and knowable reality. Under the paradigm of rational problem solving, studying the inner environment, experience or phenomenology of designers is unimportant and illogical.

Schön criticised the prevailing positivist paradigm, of technical rationality, stating that it fails to account for practical competence in divergent situations. Schön’s theory of design as reflective practice, attempted to address the dilemma and balance between rigour and relevance, focusing upon acts of intelligence within situations of

uncertainty and developing an epistemology of practice, which places technical rationality within a broader context of reflective inquiry. In the constructionist paradigm of design as reflective practice the designer is placed in a central role in design activities. However, while the theory of design as reflective practice places the practitioner centrally, describing the action-orientated steps in reflective inquiry, it objectifies the practice of design; and therefore, the theory of reflective practice, as defined by Schön, falls short of an understanding of the experience of designing. Progress can be made toward developing the theory of reflective practice and further increasing the theory's relevance to design as it is practised by developing our understanding of the experience of designing.

This study is concerned with the experiences and conditions that occur as expert designers practise reflective practice within design practice. It develops our knowledge of design as it is experienced by providing descriptions of the design experience based upon the reflections of expert designers.

This thesis describes an embedded multiple-case study with multiple units of analysis, where qualitative data about the experience of designing were obtained from eight semi-structured interviews with expert designers. Based upon the process of conjecture and refutation the thesis presents a discourse analysis to test theoretical propositions and draw conclusions about the experience of designing. The findings of this data analysis support the following conclusions:

The design process of uncertainty resolution generates emotional fluctuation and disquiet. When operating in situations of volatility and ambiguity, expert designers use creative thinking as a coping mechanism to escape their fear and uncertainty. Creative thinking is used to frame and reframe the design situation in an attempt to create conceptual certainty and synthesis explored through propositional change experiments.

Contextualised by the challenge of the design situation the creative element of the design experience is stimulated by: iterative attempts to escape the discomfort of uncertainty and manifest clarity through the creative moment; attempts to protect the conceptual certainty and joy of a design proposition; and the need to do better and have their propositions accepted and considered valuable by other people.

The significance of the study is that it moves beyond design practice theory and descriptive models of design processes; it focuses on the practise of design practice,

describing the experience of expert designers' professional activities. The key contribution is to further our understanding about, and help describe elements of, the experience of designing, relating those descriptions to the theory of design as reflective practice. This study frames designers' activities from the perspective of their experience and their relationship with uncertainty, thereby providing new ways to understand designing.

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Author's Declaration

This work has not previously been accepted in substance for any other degree and is not being concurrently submitted in candidature for any other degree.

This thesis is the result of the author's own research and investigations, except where otherwise stated. The use of other sources is acknowledged and identified with explicit references. A full list of references is appended.

Signed:

Nicholas Spencer

November 2008

Foreword

A description of the motivation that initiated this research project

The motivations that initiated this research project

I began this research project immediately after completing my undergraduate studies in industrial design. After a year of full-time study and part-time teaching, I took a full-time post lecturing at the School of Design, Northumbria University and continued this project part-time. I started this project in 2002 and writing the last section of this thesis six years later it is clear that my motivations, while more informed, still hold to the same basic ambitions as they did then. What follows is a brief description of the motivations that initiated this study.

During the final year of my bachelor degree I was introduced to a little book called 'The Wisdom of Insecurity' (Watts, 1951). In the preface, the book is described as, 'an exploration of the law of reversed effort'. Watts argues that the insecurity and uncertainty we experience is the direct result of trying to be psychologically secure, and that, contrariwise, salvation and sanity consist in the most radical recognition that we have no way of saving ourselves. Watts suggests that the more we crave security and certainty the more acutely and keenly we experience our insecurity and uncertainty and the less we allow the world to be. For me, the wisdom of insecurity tells us that certainty is mind-made; it is a conceptual construction, useful, but constructed. Contrasting belief and faith Watts made the following point:

Belief, as I use the word here, is the insistence that the truth is what one would 'lie' or wish it to be. The believer will open his mind to the truth on condition that it fits in with his preconceived ideas and wishes. Faith, on the other hand, is an unreserved opening of the mind to the truth, whatever it may turn out to be. Faith has no preconceptions; it is a plunge into the unknown. Belief clings faith lets go (Watts, 1951: 24).

Watts' ideas proved thought provoking. I wondered how true the wisdom of insecurity was and how its ideas connected to the world of design. Specifically, I became interested in how these ideas affected the way a design practitioner practised and developed. It seemed to me that designers needed to embrace the wisdom of insecurity and required willingness and faith to do so. My understanding was that designers need to be willing to put down their beliefs and engage their psychological insecurity and uncertainty and they need faith that this is okay, that they will be okay

and that the discomfort is not something they need to run from. My understanding was that this was part of how designers explored what could be.

Reading around the subjects of uncertainty, certainty and development I poured through design literature, identifying connections that sparked excitement. One of the books that aroused me was a strange text called 'Designing Designing'. One of the passages of the book described designers' relationship with both certainty and uncertainty. Jones (1991) clearly highlights that design is not about certainty it is a pursuit that defines 'the new' that requires designers to be courageous as their role is to expand into the unknown and uncertain:

The rational method gives you the impression you can solve the design problem with certainty, with mathematical certainty, and the kind of person who likes that is not really a designer. He is a person who should never have been in design. It is not to do with certainty, design. Design is creating the new. The new is always uncertain that's the whole idea and you do need rationality but you need it to allow you to have courage, the courage to expand further (Jones, 1991: 39).

Another author who interested me was Schön and his texts 'The Reflective Practitioner' and 'Educating the Reflective Practitioner'. Schön emphasised that professional situations of practice are often defined by 'complexity, uncertainty, instability, uniqueness, and value conflict' (1983: 18). According to Schön the role of practitioners is to transform uncertain situations of practice, establishing a new order and developing coherence. In the work of Papanek (2000) I identified with the view that, 'design is the conscious and intuitive effort to impose meaningful order [...] we constantly try to understand our ever-changing highly complex existence by seeking order in it' (2000: 3). Papanek seems to suggest that one of the strands of purpose driving design activities is confusion, feelings of ill ease, and uncertainty. In an attempt to reconcile these ideas I formulated the following views:

Design is the purposeful activity initiated by the recognition of a perceived problem or opportunity, which through the application of energy, skill and resources leads to re-arranging our reality. This is set against a particular contextual backdrop of broader change so that the changes facilitate value and benefit to an identifiable quantity of people who come into contact with the changes.

Designers are thrown into situations where a way forward is unclear. Designers, like most humans, desire security and rely on certainty. When their

situation of practice is chaotic and uncertain it can be deeply unsettling and stressful. Their desire for order drives them to reconfigure their situation of practice and purposefully develop change. Uncertain and chaotic situations of practice provide contexts and platforms through which designers can create new meaningful interpretations of the world.

My experiences as an industrial design student and my interpretation of the design literature suggested that the world could be experienced as unsettling and unsatisfactory and we could resolve those feelings, at least temporarily, by changing the world, or a small part of it, by adding something new or by removing something. But I still wanted to know and could not find answers to the following questions:

- Why do designers need courage?
- Why is it unsettling to develop the new, and expand beyond what is known?
- To what extent do designers affect their design investigations with their mind-made conceptualisations?
- How does ill ease and confusion affect a designer and influence their professional activities?
- How do expert designers experience their professional activities?
- How do expert designers handle uncertainty?
- Is it possible to be serene and calm in the face of uncertainty?
- Is the creation of the new always turbulent and stressful?

Stimulated by these questions, and the lack of answers provided by the literature, I began this study. Initially I had a grand ambition; I had read about the potential benefits and effects of meditation practices and I wanted to examine the effects practising designers would experience should they engage and practise meditation. It seemed clear to me, when I started this project, that the mental training implied by meditation practices would have potential benefit in helping designers cope with their turbulent experiences of expanding beyond the known and operating in complex uncertain situations of practice. It seemed that meditation helped develop calm and clarity and that both of these qualities would be beneficial to design practitioners. My initial ambition was to articulate the potential benefits that practising meditation would afford a design practitioner. I initially set out to investigate the relevance of Buddhist teachings in the context of everyday design practice.

In the orientation period of this project I soon found that the experience of design practitioners was an area under addressed by researchers and little was documented about what it was like to design. I also found that although there was a plethora of literature about: Buddhist philosophy, scripture and doctrine; advanced practice and

altered mental states; and Buddhist culture, there was little literature that coherently documented what it was like to begin practising meditation and what the everyday consequences were.

I proposed two lines of inquiry and three studies. I proposed to investigate the experience of design practise and the experience of meditation. I planned and undertook a first person investigation into Buddhist meditation practices and conducted interviews with expert designers and experienced meditation practitioners.

However, the scope of this study and the resources available were not adequate to fulfil the initial ambition. This thesis represents a refinement of that initial intent. The main body of this thesis presents an argument and study that contributes to new knowledge by developing our understanding of the experience of design as it practised. It helps provide foundations upon which to base further work that might one-day result in the fulfilment of the initial ambition that sparked this project.

An epilogue to the main thesis has been included, which discusses the findings of my inquiry into Buddhist meditation and considers the impact that this form of mental training might have upon design practice based upon the findings of the main thesis.

CHAPTER ONE - Introduction

An introduction to the research project, its aims, objectives and its contribution to knowledge

1.1 – The focus of this research project

Expert industrial designers are remarkable. Every day they cope with design situations that are ambiguous, ill defined and uncertain. They bring clarity and order to complex situations and problems. They create ‘the new’, developing commercial benefits for their clients and experiential value for product customers. The praxis of professional designers represents a vast and valuable body of knowledge that can be made explicit and investigated rationally and systematically. This research project is concerned with studying and generating knowledge about the praxis of professional expert industrial designers. Specifically, it is concerned with the experience of designers as they undertake their professional activities. Dorst (1997) provided a rationale for studying the experiences of designers, stating:

A [...] reason to concentrate on designers’ experiences is that the decisions designers take in their multi-step process of designing are ‘controlled’ by the perceptions of the designers themselves. So the experiences of designers working on a problem are an integral and vital part of design activities. The understanding of their design experiences is an indispensable ingredient for any real understanding of design activities (Dorst, 1997: 19).

Design methodology has been described as ‘the study of principles, practices and procedures of design’ (Cross, 1984). Its general goals are to enhance the efficiency and effectiveness of design activities and to develop design as a discipline by gathering, creating and critically discussing insights about design. Design methodology includes the development of formal models of design activities, from which methods, techniques, and tools can then be derived. However, design methodologists have been criticised for being out of touch with design practice. Alexander is recorded as saying, in 1971, ‘[design methodologists] have definitely lost the motivation for making better buildings [...] there is so little in what is called ‘design methods’ that has anything useful to say about how to design buildings’ (Alexander cited in Cross, 1984) and in 1995 Coyne remarked:

There exists a gap between the promise and fulfilment, between theory and pragmatic use [...]. The reason for this gap lies not in some supposed inertia or unscientific prejudice on the part of the designers, but in the lack of correspondence between the models of the design process and the process itself as experienced by designers in their practice (Coyne, 1995).

Design researchers have paid insufficient attention to the experience of designing, by improving our knowledge of this phenomenon a more complete and representative

account of design activities would be achieved. If design researchers can develop a more representative account of design activities it will contribute to bridging the gap between design theory and design practice.

Schön (1983 & 1987) assessed design methodology on its balance between relevance and rigour and concluded that rigour significantly outweighed relevance. The result of this imbalance led to a design methodology that successfully established itself as a scientific undertaking, but which had, in the process, lost some of its relevance for the world of design. Schön attempted to address the balance by proposing the action-based theory of reflective practice, which described the actions that practitioners take to establish order within complex and ill-defined situations of practice. Schön described designing as a reflective conversation with the materials of the situation; his work concerned reflective practice. However, while the theory of design as reflective practice places the practitioner centrally, describing the action-orientated steps in reflective inquiry, it objectifies the practice of design; and therefore, the theory of reflective practice, as defined by Schön, falls short of an understanding of the experience of designing. The theory of reflective practice can be developed further to increase the theory's relevance to design as it is practised. This study examines the experience of reflective practise.

The difference in the definition between practice and practise helps to define the focus of this study. Design practice classifies a particular professional activity. Reflective practice classifies a particular kind of investigative activity. As defined by Schön, reflective practice classifies the activity of bringing order to an ill-defined professional situation of practice using reflection-in-action, which operates through the actions of naming, framing, moving through action and evaluating through reflection. Design practise describes the actions of a practitioner who is professionally involved in design practice. Reflective practise describes the acts of undertaking reflective practice.

In this study the general field of study is design methodology research, and the focal field of study is the experiences and conditions that occur as expert designers practise reflective practice within design practice.

1.2 – Research intent

Insufficient attention has been paid to the experience of designing. Our current state of knowledge provides an incomplete and biased view of design activities. The intent of this study is to develop our knowledge of design as it is experienced by providing descriptions of the design experience based upon the reflections of expert industrial designers.

1.3 – Research audience

There are three significant audiences for this research: design researchers, design educators and design practitioners. The anticipation is that this study will provide descriptions of the experience of designing. The main audience for this thesis is design researchers. It is intended that this document will detail an exciting and persuasive research project and communicate new knowledge, which will help signpost a fertile area for further research. The findings of this study would be useful for design educators because they help articulate experiences and conditions of design practice useful to communicate to design students. Additionally, the findings of this study have implications for curricular content and pedagogy that design educators may benefit from reflecting upon. The findings of this study and the expert designers' interview content are considered useful for, and of interest to, design practitioners. The descriptions of the design experience, the study's findings and conclusions, provide material and stimulus for practising designers to reflect upon their own practice and experiences. By reflecting upon their own experiences and considering the findings of this study, design practitioners may develop a better understanding of their own practice-based knowledge.

1.4 – Research aims and objectives

The central argument of this study is: insufficient attention has been paid to the experience of designing, therefore by improving our knowledge of this phenomenon a more complete and representative account of design activity would be achieved. The study's broad aim is: to increase our understanding of designing as it is experienced. This thesis is split into discrete chapters, each with specific sets of objectives, which aim to build an argument that satisfies the study's broad aim and articulates how this research project contributes to new knowledge and its understanding. This section

intends to describe the objectives for each chapter, thus illustrating the steps that lead to the satisfaction of the study's broad aim.

Chapter 2, the study's literature review, is driven by the study's basic research question: a) what is the current state of knowledge about the phenomenology of designing; and b) how could this understanding be improved? The first objective of the literature review is to establish the project's central argument and illustrate that there has been, to date, a lack of research conducted into the design experience. The second objective of the literature review is to provide an answer to the basic research question part a). This is achieved by detailing the current state of knowledge about the experience of designing. The third objective, of the literature review, is to pose sets of discrete research questions, which highlight current knowledge gaps and indicate how our understanding of the phenomenology of designing might be improved. Chapter 2 frames the central argument, by discussing relevant literature, revealing the current state of knowledge about the phenomenology of designing and validating the claim that insufficient attention has been paid, by design researchers, to the experience of designing.

The purpose of Chapter 3 is to discuss and disclose a research design for an empirical study that will lead to new knowledge about the experience of designing, thus satisfying the basic research question part b). The first objective of Chapter 3 is to discuss different research traditions and their methods, outlining which methodology and research strategy is appropriate for researching experience. The second objective is to forward the study's theoretical propositions as conjectures and detail the rationale, methods and procedures for an empirical study that will allow the conjectures to be tested and for conclusions to be drawn. An overview of the research design is provided in Section 1.5. Chapter 3 contains the rationale and logic for the generation of new knowledge. Based upon critical rationalism and the process of conjecture and refutation, Chapter 3 details the methods and analytical procedures intended to test the study's conjectures and lead to findings and conclusions about the experience of designing.

Chapter 4 presents the data for the study's eight case studies. The objective of this chapter is to detail the substantive content of the expert designer interviews. This chapter contains the data referred to in the data analysis chapter.

The purpose of Chapter 5 is to move closer to achieving the study's broad aim by presenting the study's data analysis. The first objective, of Chapter 5, is to illustrate which data sections support and which refute the study's conjectures. The second objective is to subject the study's conjectures to a discourse analysis, leading to the study's findings: descriptive statements portraying the design experience.

Chapter 6, discusses the findings of the data analysis and makes explicit how the research has contributed to new knowledge and its understanding. Chapter 6 has four objectives: 1) discuss and relate the findings of the study to relevant literature reviewed in Chapter 2, making clear how the findings validate or refute current design theory; 2) discuss the reliability of the findings and present the findings as either robust findings that the research was designed to test, conjectures that the data analysis suggested, or conclusions drawn from the robust findings; 3) make suggestions for further research by considering the implications of the findings and by considering the scope and limitations of the research design; 4) present the study's contribution to new knowledge and its understanding.

1.5 – Research design

The research design for this project's empirical study can be summarised as follows:

Epistemology – Critical rationalism (Popper, 2002)

Methodology – Descriptive multiple-case studies following replication not sampling logic (Yin, 1993; 2003)

Phenomenon under study – Expert designers' experience of designing. This defines the context of the cases under study

The selected cases – Mark Delany, Kevin McCullagh, Les Stokes, Adrian Stokes, Steven Kyffin, Tim Brown, John Thackara, and Sean Blair (refer to Section 3.5.5 for a presentation of the sampling rationale) (each of the participants has provided their consent to use their name and the interview material as representative of their views during the interview within this thesis: refer to Appendix C)

Unit of analysis – This is an embedded multiple-case study with multiple units of analysis (Yin, 2003: 40). The units of analysis are defined by the 2 conjectures stated in Section 3.6.2.

Data type – Qualitative

Data collection method – Semi-structured interviews, using open-ended questions, audio recorded and fully transcribed

Analytical method – A cross-case discourse analysis structure intended to test the units of analysis.

1.6 – Limits of the research

The research design represents methodological and self-imposed limitations. This study draws upon the reflections of expert designers, obtained using semi-structured interviews and open-ended questions. This method of data gathering raises questions about the accuracy of the data in representing the experiences of designers. Experience is a first-person phenomena and it is not possible to study experience with third-person research methods. The use of interviews is an accepted and appropriate method for studying people's recollections and reflections on their past experiences. This is an inescapable limitation of the research design.

In this research project the phenomenon under study is expert designers' experience of designing. Eight cases representative of expert designers were studied. Based upon replication sampling logic, cases were selected where similar results could be predicted. The sampling logic and the cases studied represent limitations of this research project. This study does not enter into a discussion about the experience of designers from different design domains, of different levels of experience, involved in projects of different lengths, or, with different educational backgrounds.

This research project's empirical study is designed to test two conjectures and data is gathered by asking expert designers a specific set of interview questions in the context of a semi-structured interview. The study's conjectures and interview questions inform the data gathering and its analysis; these factors are both limitations of the research.

1.8 – Contribution to new knowledge

Schön (1983 & 1987) articulated and contrasted the paradigm of design as reflective practice to the paradigm of design as technical rationality, which was significantly developed by Simon (1969). Schön positioned technical rationality within the broader framework of reflective practice. Schön produced an action-orientated theory that described the process of ordering ill structured situations of practice. This study is significant as it moves beyond reflective practice theory and descriptive models of design processes; it focuses on the practise of design practice, describing the experience of expert designers' professional activities. The key contribution of this study is to further our understanding about, and help describe elements of, the experience of designing, relating those descriptions to the theory of design as reflective practice. This study has helped frame some of the activities of designers from the perspective of their experience and their relationship with uncertainty, providing new ways to understand designing.

The study presents three kinds of finding: 1) findings based upon the study's conjectures that the research was designed to test and that were subjected to attempts at refutation; 2) conclusions presented as conceptual constructions that summarise and focus on the conditions and use of creativity within reflective practice from the perspective of the experience of design; and 3) conjectures that were suggested by the data analysis and are considered valuable in shaping further research. Based upon the reflections of expert designers, gathered in the context of a semi-structured interview, this study contributes descriptive statements about the experience and conditions of expert practitioners' practise of reflective practice within design practice. This thesis argues for, and supports, the following findings:

Describing the design experience

1. *As expert designers engage with a professional context that is uncertain, ill structured and ambiguous they personally experience uncertainty. As the uncertainty of the challenge is grasped, fear develops about their ability to resolve the design problem's issues and exploit its opportunities.*
2. *Iterative attempts to develop solutions can lead to frustration as the expert designer assesses his/her propositions as inadequate for resolving the design challenge. Over time, if solution propositions continue to be assessed as*

inadequate, dread is experienced as the expert designer questions his/her ability to resolve the design challenge. Mental paralysis can occur after this stage where the expert designer is unable to further explore the design situation.

3. *A creative event, which can occur at any point in time and at any reflective practice stage, transforms the tone of an expert designer's experience. Creative events differ in their significance and effect and are the moments of realisation when an expert designer reframes his/her situation of practice. The experience of certainty and joy accompanies creative events, which are seen as uncertainty resolving, and returns the practitioner to a state of optimism and excitement.*
4. *Chaos events are an aspect of expert designers' experience. Chaos events initiated by people other than the designer unsettle the designer generating uncertainty, anxiety and fear by disrupting the coherence that they established.*

Designers' mindset

5. *Expert designers are optimistic about their ability to resolve design problems, see problems as opportunities and begin their task with positive excitement.*

Behaviours of good reflective practise

6. *The design process involves uncertainty resolution and generates emotional fluctuation and disquiet. Expert designers recognise the necessity, and are willing to continually face their feelings of dissatisfaction and psychological discomfort.*

This thesis draws the following conclusions about the conditions and use of creativity within reflective practice from the perspective of the experience of design:

1. *The design process of uncertainty resolution generates emotional fluctuation and disquiet. When operating in situations of volatility and ambiguity, expert designers use creative thinking as a coping mechanism to escape their fear and uncertainty. Creative thinking is used to frame and reframe the design situation in an attempt to create conceptual certainty and synthesis explored through propositional change experiments.*

2. *Contextualised by the challenge of the design situation the creative element of the design experience is stimulated by: iterative attempts to escape the discomfort of uncertainty and manifest clarity through the creative moment; attempts to protect the conceptual certainty and joy of a design proposition; and the need to do better and have their propositions accepted and considered valuable by other people.*

Based upon the data analysis, this thesis proposes the following conjectures as useful for shaping further research:

1. *The activities of ordering the design situation and committing to particular viewpoints trigger the experience of uncertainty and fear about the appropriateness of that judgement.*
2. *Expert designers require a balance between peace of mind and inquisitive discontent, continuing to strive and search for better personal performance and professional outputs while avoiding inertia due to fatigue, stress or conceit and avoiding awareness loss due to over excitement.*
3. *Expert designers are willing to and iteratively face their feelings of dissatisfaction and psychological discomfort in order to: iteratively generate more refined design proposals; manifest the ideal that they are positively contributing to progress; see the product or project through to a point of resolution; feel the thrill of the uncertainty resolving creative moment; and to enforce and build professional pride.*
4. *Expert designers desire and engage design problems of increasing complexity and challenge stimulating their experience of discontent and uncertainty, which they attempt to resolve through their professional activities.*
5. *Designing is an attentive conversation with the materials of the situation. Designing is limited by designers' ability to remain engaged with the design situation and their ability to develop the design situation. Expert designers develop strategies to encourage their engagement with the design situation and ensure that they continue to reflect-in-action and continue learning how to design.*
6. *Underpinned by inquisitive and critical curiosity, expert designers unfold into broader contexts and unfold from their own view on the world. Using creativity to reframe situations expert designers engage with multiple*

viewpoints. *Personal empathy, commercial empathy and discipline empathy provide three channels through which expert designers undertake disciplined inquiries.*

1.9 - The thesis structure

This thesis is structured in the following way:

Guide to the thesis structure	
	Foreword - the motivations that initiated this research project
1	Introduction - the study's focus, audience, scope, aims, objectives and significance
2	Literature review - the study's central argument and its theoretical foundations
3	Research Design and Methodology - the rationale and plan for this project's empirical study
4	Data Presentation - a presentation of the data from the project's eight case studies
5	Data Analysis - a data analysis of the study's conjectures
6	Discussion - relating the findings of the data analysis to design theory and stating the contribution this study makes to new knowledge
7	Summary - a presentation of the thesis's key arguments
	Epilogue - a consideration of Buddhist meditation and its implications for the experience of design practice practitioners
	Reference List

Figure 1.1 – Thesis structure (original in colour)

CHAPTER TWO - Literature Review

The study's central argument and its theoretical foundations

2.1 – Chapter purpose

The purpose of this literature review is to move from the study's basic research question, to sets of developed research questions to guide the construction of an empirical study. This is achieved, in this chapter, through a critical consideration of relevant literature and theoretical knowledge (Hart, 1998). In this study the general field of study is design methodology research, and the focal field of study is the experiences and conditions that occur as expert designers practise reflective practice within design practice. The study's broad aim is: to increase our understanding of designing as it is experienced. The study's basic research questions are: a) what is the current state of knowledge about the phenomenology of designing; and b) how could this understanding be improved? The first objective of the literature review is to establish the project's central argument and illustrate that there has been, to date, a lack of research conducted into the design experience. The second objective of the literature review is to provide an answer to the basic research question part a). This is achieved by detailing the current state of knowledge about the experience of designing. The third objective, of the literature review, is to pose sets of discrete research questions, which highlight current knowledge gaps and indicate how our understanding of the phenomenology of designing might be improved.

The outcome of the literature review is a presentation of the synthesised findings and sets of developed research questions that will guide the construction of an empirical study.

This body of this chapter is divided into six sections:

- 1) Studying design activity: this section reviews some of the early work of design methodologist and considers the role of the designer and the experience of designing within the paradigm of technical rationality (Simon, 1969).
- 2) Why study the experiences of designers: this section contains a rationale for why this study focuses upon increasing our understanding of the phenomenology of designers.
- 3) Design as reflective practice: this section examines the action-orientated paradigm and theory of Schön (1983 & 1987), highlighting how our

appreciation of reflective practice could be enhanced by examining Schön's thinking though a greater understanding of design as it is experienced.

- 4) Design expertise: this section focuses on some of the key contributions to the growing body of literature about design expertise. This review highlights the theories that have been extracted from observations of novice and expert designers with a predominant focus upon developing our understanding of: different cognitive strategies applied to problem solving, designerly ways of knowing; and forms of design knowledge.
- 5) What designers say about designing: this section reviews some of the seminal studies, which have involved interviews with expert designers. The review examines the conclusions the researchers generate and considers themes that could be extended by this study.
- 6) Designers and uncertainty: a recurrent theme in the literature review, this section considers how researchers have differently considered designers' relationship with uncertainty.

2.2 – Studying design activity

2.2.1 – Section purpose

Designers have been studied to reach a consensus about the problem solving strategies, thinking styles, guiding principles, abilities and personality traits that are critical for a successful designer (Cross, 1990; Christiaans, 1992; Lawson, 1994; Cross, 1996; Mitchell, 1996; Cross, 2003, 2004; Lawson, 2004, 2006; Cross 2006). Studies have been conducted to discover more about the nature, structure and types of problems that designers grapple (Simon, 1969; Rowe, 1987; Schön, 1983, 1987; Dorst and Cross, 2001; Dorst, 2003). Design processes have been studied in detail, generating problem solving models, descriptive and prescriptive models of the design process, process management, strategies and heuristics for design. Texts by Jones (1970); Cross (1984 & 1994); Ullman (1992); Ulrich and Eppinger (1995); and Roozenburg and Eekels (1995) provide overviews of the work in this field. However, there still remains a lack of rigorously constructed explicit understanding regarding the experience of designing. The purpose of this section is to introduce the general field of design methodology research and examine the methodological position of the design paradigm of rational problem solving and the consequences this has for the meaning and role of the designer. Through this review it will be argued that: a)

developing an understanding of the phenomenology of designers is philosophically unnecessary and logically irrelevant under the design paradigm of rational problem solving; and b) the influence of this way of thinking about design has, in part, contributed to the lack of research conducted into designing as it is experienced.

2.2.2 – Design paradigms and early design methodology research

Design methodology has been described as ‘the study of principles, practices and procedures of design’ (Cross, 1984). Its general goals are to enhance the efficiency and effectiveness of design activities and to develop design as a discipline by gathering, creating and critically discussing insights about design. Design methodology includes the development of formal models of design activities, from which methods, techniques, and tools can then be derived.

In design methodology there has developed two fundamentally different ways of approaching design, formalised into two paradigms called ‘rational problem solving’ (also known as technical rationality) (Simon, 1969) and ‘reflective practice’ (Schön, 1983 & 1987). The rational problem solving paradigm largely influenced the early work of design methodologists. The reflective practice paradigm was introduced, as a reaction to the criticisms levelled at the rational problem solving paradigm, and to address the balance between rigour and relevance.

In the early 1960’s there was a need for a more structured management of design processes in practice and in education. Early research led to the development of phase-models and flow diagrams of the design process (Archer, 1965) and attempts to rationalise and even automate the treatment of design problems (Alexander, 1964). These early efforts tried to relate the design problem and solution in a logical, predictably descriptive and understandable manner. Alexander (1964) addressed the complexity of design problems by breaking them into manageable components, which could be tackled by the human mind. He developed a mathematical system, decomposing design problems hierarchically into chunks, which were as discrete as could be found within the overall framework. The role of the designer was to propose solutions to each of these discrete sub-problems and then assemble the sub-solutions into an overall solution. The intent behind Alexander’s approach was to de-mystify the design process. The assumption was that design could be treated as two distinct

phases: problem formation and solution synthesis. The first phase of the design process sought to clearly understand and explicitly state the design problem. In clearly describing the problem, solutions could be identified, logically related to the problem specification and the optimum solution recognised. Although this early work was extremely optimistic about the level of systemisation that could be applied to design problems and processes and the effect this would have on quality (Cross, 1984), the theoretical models of those times were rightly criticised for being overly rational, weak in their description of design processes and impractical (Jones, 1970).

The criticisms of the early design methodology work had different effects in different discipline domains. In Architecture, design methodology moved away from attempts to further detail the rational phase models and focused instead on the ill-structuredness of problems it tackled (Rittel 1972) and creative aspects of architectural design activities. In Engineering, design methodology attempted to incorporate more theoretical knowledge about designers and design problems into the rational phase models of the design process (Roozenburg and Cross, 1991). The theories introduced by Simon (1969) provided the framework for this.

Simon (1969) forged a link between classic design methodology and the problem-solving theories from computer science and psychology. Simon defined designing as an instrument of rational problem solving where in its best and purest form it is a process of optimisation. The rational problem solving approach in design methodology is a combination of: practice-based phase models of the design process; a model of the designer as an information processor, from the field of cognitive psychology; and thinking on the nature of design problems. These three elements are connected by the theory of 'human problem solving'. Simon described problem solving 'as a search through a vast maze of possibilities, a maze that describes the environment. Successful problem solving involves searching the maze selectively and reducing it to manageable proportions' (Simon, 1996: 54). These search processes have been studied through protocol analysis of subjects solving chess and cryptarithmic problems and can be displayed and analysed in 'problem behaviour graphs' (Newell and Simon, 1972).

Within the paradigm of rational problem solving, problem solvers (designers) are goal-seeking information processing systems, operating in an objective and knowable reality. Simon claims that in the process of designing it is important to make the distinction between inner and outer environments, this he considers useful as ‘we can often predict behaviour from knowledge of the systems goals and its outer environment, with only minimum assumptions about the inner environment’ (Simon, 1981: 11). This behaviourist stance clearly acknowledges a subjective and objective split and rejects the importance of the inner environment. Neither the designer’s experience nor the user’s experience is important; what matters are their actions and these can be controlled and predicted if the correct procedures are followed. Simon goes on to say that, ‘human beings, viewed as behaving systems, are quite simple. The apparent complexity of our behaviour over time is largely a reflection of the complexity of the environment in which we find ourselves’ (Simon, 1996: 53). Goals are seen to define the interface between humans’ inner and outer environments, (memory being included within the outer environment), and in this way the involvement of people in design problems stabilises and can be treated as well-defined sets of conditions through appropriate scientific study of outer environments and goal identification. This has led to an acceptance, within this paradigm, of design theories and methods that are (supposedly) independent of the detailed properties of the designer or designers they are meant to support. Under the paradigm of rational problem solving, studying the inner environment, experience or phenomenology of designers is unimportant and illogical; this, in part, explains why there is a lack of research conducted in this area.

Simon’s description of stable, well-structured, small to medium scale design problems fits a positivist epistemology where designing is considered instrumental problem solving, viewed as a technical procedure, performed in stable knowable conditions, measured by its effectiveness in achieving a pre-established objective. Rigorous practise can be seen as the application of research-based theories and techniques derived from the method of controlled experiment, which aims to create ‘things’ that function technically well and perform in predictable ways when placed in certain predetermined conditions of use. In this view of designing the designer does not influence the nature of the problem but simply applies the relevant logic and theory to defined parameters, action is only an implementation and a test of technical

decisions. According to Schön (1987) 'this view ignores the most important functions of designing in situations of uncertainty, uniqueness, and conflict where instrumental problem solving – and certainly optimisation – occupy a secondary place, if they have a place at all' (Schön, 1987: 41). The paradigm of design as reflective practice, as conceived by Schön, will be explored, in detail, in Section 2.4.

Perhaps the usefulness of thinking about 'design' as problem solving and calling rational problem solving 'design' can be questioned. The term 'design' is often used to describe activities and situations that are fundamentally different. The differences go beyond the observation that some problems are structured while others are ill-structured. The major difference lies in the epistemological stance, which affects the methodologies and methods of action and assessment (Dorst, 1997). Rational problem solving requires that something works and functions correctly, whereas 'design' requires that something is perceived as phenomenologically better and provides added value. Those working from the perspective of 'design': value the experience of people; value the quality of the relationship and interaction between a person and a product; aim to make situations 'better'; and respond to the shifting impermanence of life, people, situations and problems. Those working within the paradigm of rational problem solving focus upon: the functioning and performance elements of the product; aim for 'optimisation'; and respond to a constructed bounded aspect of life, which works under the premise of permanence or significant stability.

2.2.3 – Design problem research

In this section I will present four different research studies, which focus upon one theme. This review is undertaken to consider the relevance of the designer and the experience of designing within different studies on a single subject. The theme of research is explorative design activity and the relationships between the problem, the solution, and the designer. The studies have been selected to highlight how different researchers have treated or excluded the designer when considering the relationships between problems and solutions. The studies presented are:

Study one

Authors - Maher, Poon and Boulanger (1996)

Research method - computer simulation of design activity

Research aim - to develop an argument that explains why CAD tools for designers need to work from the premise of un-stable design problems not stable well-defined ones

Research outcome - a designer independent model of creative and explorative design

Conclusion - design is explorative, understanding of the problem develops as solutions are identified.

Study two

Authors – Dorst and Cross (2001)

Research method – protocol analysis of nine experienced designers undertaking a design problem in a laboratory setting

Research aim - to study creativity in the design process

Research outcome - a designer independent model of creative and explorative design

Conclusion - design is explorative, understanding of the problem develops as solutions are identified; creative events create a problem solution pair temporarily fixing the problem space.

Study three

Author - English (2006)

Research method - reflection and theorising

Research aim - to explore the designer's development of value through the use of deductive reasoning and subjective choice in the construction of design problem space

Research outcome - a model of creative and explorative design centred on the constructing activities of the designer

Conclusion - problem space is created by the designer and influenced by their experience of ways of seeing and their awareness of what is possible.

Study four

Author - Lawson (2004 & 2006)

Research method - reflection and theorising based upon previous interviews with designers (1994)

Research aim - to better understand design activity as practised

Research outcome - a model of creative and explorative design centred on designers' activities of analysis, synthesis and evaluation

Conclusion - design is about integration, design problems depend to a significant extent upon the knowledge brought into the project by the designer.

Study one

Maher et al. (1996), through a design simulation experiment, proposed an alternative way of framing the relationship between design problems and design solutions. In contrast to the traditional rational problem solving view that a well-defined problem requires a search, which would identify the solution, Maher claimed to consider the issue from the perspective of ill-defined problems and proposed the co-evolution of the problem and the solution. In Maher's view, explorative design involves searching for problem definition as well as the solution. Figure 2.1 is Maher's illustration of the difference between the design process from the perspective of well-defined and ill-defined problem structures.

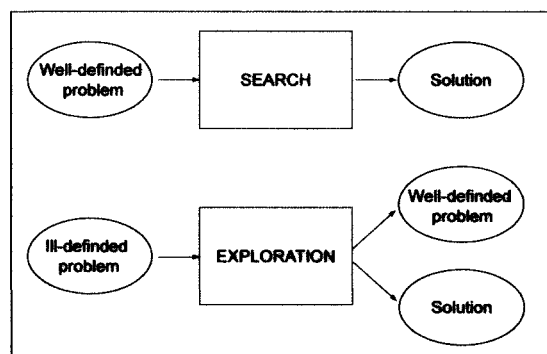


Figure 2.1: Well-defined and ill-defined problem structures (Maher, 1996: 2)

Maher proposed a model for design exploration based on notions of evolution, which aimed to demonstrate computational co-evolution using a modified genetic algorithm. In this model (see Figure 2.2) of co-evolution, two systems evolve in response to each other. 'Co-evolution in design exploration supports the change, over time, of the design solution and the design requirements' (1996: 1).

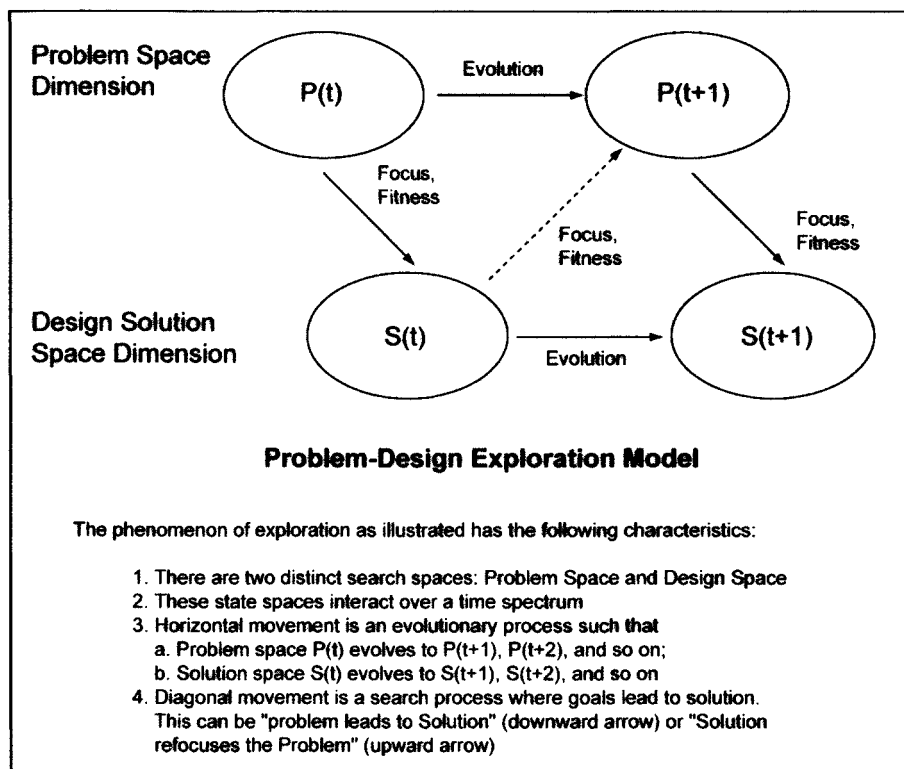


Figure 2.2: Co-evolution of problem and solution spaces 1 (Maher, 1996: 5)

Maher saw design as an iterative interplay between ‘fixing’ a problem from problem space and then ‘searching’ for plausible solutions from the corresponding solution space. The features and constraints in the current solution would then become criteria leading to a redefined problem space.

Maher tests the model by applying the ‘genetic algorithm’ to the design of a steel braced frame, work traditionally carried out by a structural engineer. Arguably, this would not be directly comparable to the work of a professional industrial designer: the complexities of the tasks are not comparable nor are the problems similarly ‘ill-structured’. The model appears to describe, with success, the computational application of a modified genetic algorithm when selecting an appropriate format for steel braced frames. As Maher et al. use a ‘genetic algorithm’, in this design simulation there is no human designer (one assumes that the ‘designer’ would operate the computer software) and obviously no contribution to our understanding of the experience of designing. The success of this work is that it provides an example of a tool which can be operated when problems are ill structured under the rational problem solving paradigm, providing a counter-point to an on-going argument against

the relevance of rational problem solving for design situations and activities. Dorst and Cross (2001), which is presented below, conducted a study to verify and extend Maher's model by placing it in the context of human problem solving and design activities.

Study two

Dorst and Cross' (2001) study drew from a 'think-aloud' protocol analysis of nine experienced designers working on a design problem in a 2.5 hour timeframe. This study, focusing on developing our understanding of creativity in the design process, combines a number of different methods to analyse data, develop a model and generate arguments.

Data is generated through the use of expert design judges scoring the outputs of the design activity, under study, against various criteria. The method of using expert design judges is considered robust, by the researchers, as they tested for and achieved a strong inter-rater reliability score. This data is analysed, in an objective manner using quantitative methods, to assess the relationship between a design output's creativity score and its overall score (or judgement). From this the authors conclude, with the exception of one design project, that the more creative designs were considered better in the total judgement. However they go on to say that clearly 'creative' design is not necessarily 'good' design. This study, when used in conjunction with the protocols, is potentially very useful, as it objectively discerns the success of the design outputs. This allows the researcher to investigate and compare the characteristics and differences between design activities, captured in the protocols, leading to different levels of success.

The authors use extracts from the protocols to reflect upon and discuss the role of problem defining and framing, modification of the design assignment, and creativity and originality in design activities. It is disappointing that more of the data and analysis is not presented and that, consequently, a firm conclusion is not convincingly reached. What this study presents is a discussion of design research concepts, inspired by, or illustrated by protocol extracts selected by the researchers. The potential of investigating the protocols in the knowledge of their design output success is left underexploited.

Dorst and Cross adapt Maher's (1996) model of creative design (refer to, Figure 2.3), using it in reference to the processes of expert designers, describing the relationships between the design problem, the design solution and the creative event. Three additions are made to Maher's model, which Dorst and Cross consider a useful description of the problem-solving aspect of design:

- 1) The creative event is seen to build a bridge between the problem and solution spaces creating a matching problem-solution pair¹.

During periods of exploration problem and solution spaces are evolving and are unstable until (temporarily) fixed by an emergent bridge, which identifies a problem-solution pairing. A creative event occurs as the moment of insight at which a problem-solution pair is framed (Dorst and Cross, 2001: 435).

- 2) The designer is seen to have a default project (default problem and solution spaces), a set of expectations about design problems and design solutions, built from past design experiences. Default problem/solution spaces are used to make comparisons to the current challenge.
- 3) Designers build a general image of their current assignment and identify surprise problem/solution spaces, which are elements of the current design situation that appear interesting when set against the designers default problem and solution spaces. The surprising parts of the problem or solution are seen to drive the originality streak in a design project.

¹ This idea is developed from Cross (1997).

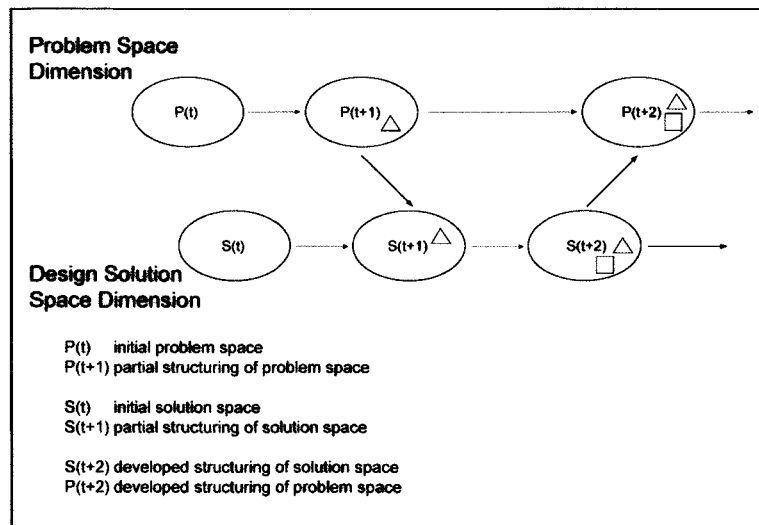


Figure 2.3: Co-evolution of problem and solution spaces 2 (Dorst & Cross, 2001: 435)

Dorst and Cross' (2001) modelling of creative design is disappointingly abstract, introducing a number of concepts (default and surprise problem/solution spaces) which appear largely as the result of theorising without enough connectivity to the data they collected. They do, however, produce a description of the creative event, relating to their data; if this had been expanded and made the focus of the study they may have contributed conclusions, which are more robust and convincing. This would have required a much better presentation of their data analysis. Additionally, it can be seen, from the following quote, how Dorst and Cross could have contributed to our understanding of the designing experience if they had achieved this:

The creative event can be observed to happen as follows:

- 1) Loose, surprising information is linked into coherent chunks, which offers a simplification of the design problem.
- 2) The recognition of the simplification happens suddenly, and is experienced as an idea (a creative insight). This finding of a coherence between the interesting information items apparently gives the designers the feelings of having grasped the core of the problem ('the problem behind the assignment'). This is a highly emotional step, and none of the designers could ignore the impact.
- 3) This 'keep the newspapers separate' idea is then (mistakenly but understandably) seen as being original. Thus the simple (obvious) selection and combination of information leads to the same core idea for all the designed products.
- 4) Then (and just by accident in this case) the transformation of this problem-chunk into a solution turns out to be very simple, too. The designer only has to turn the problem around to arrive at a solution: "If it is too much trouble putting the newspapers into the bin, keeping them in them there and getting them out again-then why put them in?" And as it happens, a product to hold

some newspaper is easily imagined. None of our designers could resist this reasoning path (ibid: 436).

Study three

English (2006) sought to further clarify the meaning of problem space and defined its relationship with designers, accordingly:

The problem space is something that the designer builds with a combination of tangible and non-tangible concepts. Tangible concepts are quantitative and objective and might relate to materials, manufacture, cost, function. Non-tangible concepts are qualitative and subjective and are often based on what the designer has learnt about how they and other people perceive things; these could include value, meaning, sensory qualities, and emotions [...] a pool of parameters chosen by the designer on the basis of a design brief, research into the context for the design and the designer's experience of ways of seeing the problem represent problem space (English, 2006: 7).

English claims that problem space is built by the designer from: 'things that have to be', derived from the brief, understanding of social meaning and physical restrictions of the situation; and 'things that the designer wants to be'. He asserts that problem space describes all the potential solutions available to the designer where 'innovation occurs not by generating ideas but through awareness of what is possible' (ibid: 10). In contrast to the position of Dorst and Cross, English does not talk about the evolving nature of problem and solution spaces, instead he postulates a single space, problem space, which is the designer's own creation and inherently contains all the possible solutions. In this view problem and solution space are not two but one. Although English does not contribute to our understanding of the experience of designing he does argue that the designer, their awareness and experience, are intimate aspects of design problems. As such, English highlights the importance of the experience of designing in developing our understanding of general design activity and positions these concepts with greater relativity to practising designers.

Study four

Lawson (1997) concluded that 'design is a process in which problem and solution emerge together. Often the problem may not even be fully understood without some acceptable solution to illustrate it' (ibid: 47). Lawson is unapologetic in his ambiguity regarding design problems and design solutions: problem and solution, over time, both emerge together 'but even at the end of a design process it is often the

case that no one person or body is in possession of the whole problem description' (Lawson, 2004: 13). Figure 2.4 is Lawson's illustration of the relationships between problems, solutions and the activities of the designer. Lawson states the following regarding the design problem and design solution:

Our final attempt to map the design process shows this negotiation between problem and solution with each seen as a reflection of the other. The activities of analysis, synthesis and evaluation are certainly involved in this negotiation but the map does not indicate any starting and finishing points or the direction of the flow from one activity to another (1997: 47).

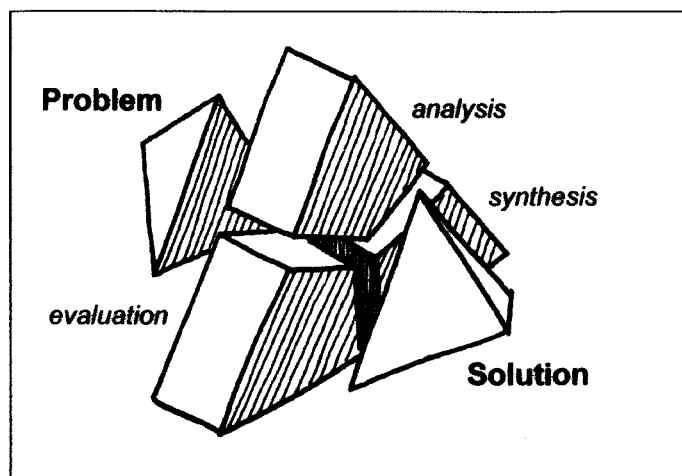


Figure 2.4: The emergence of both problem and solution (Lawson, 1997: 47)

For Lawson, design is about integration: 'design solutions are characteristically often holistic responses to the design problem' (2004: 13). Each designer responds differently to the design problem and integrates the issues in different ways producing different results. Accordingly, 'design problems depend to a significant extent upon the knowledge brought into the project by the designer' (op. cit.). Lawson declares his standpoint regarding design problems and design solutions and claims; as a consequence, that design research in this area is a study of designers' knowledge. Thus, in the work of Lawson, there is unlikely to be a focus upon design-as-it-is-experienced, unless this forms an aspect of design knowledge.

Each of the four studies presented investigates the design process and the relationships between problems, solutions, and creating activities (the designer). Each used different research methods: Dorst and Cross, and Lawson appear to have been in a position to develop our understanding of the design experience, but, focused

elsewhere in their analysis and the communication of their findings. Examining these research studies suggests that where data is available design researchers attempt to develop design theories and methods that are independent of the detailed properties of the designer or designers they are meant to support.

2.3 - Why study the experiences of designers?

In the Section 2.2 it was argued that, the design paradigm of rational problem solving, which has held a large influence over the design research community, fits a positivist epistemology where designing is considered as instrumental problem solving, viewed as a technical procedure, performed in stable knowable conditions, measured by its effectiveness in achieving a pre-established objective. This paradigm negates the importance of the 'inner environment' or experience of the designer. Rigorous practise can be seen as the application of research-based theories and techniques derived from the method of controlled experiment, which aims to create 'things' that function technically well and perform in predictable ways when placed in certain predetermined conditions of use. Design methodology, which has followed this paradigm and made efforts towards a 'Science of the Artificial', has accepted design theories and methods that are (supposedly) independent of the detailed properties of the designer or designers they are meant to support. Within this paradigm there is no need to undertake detailed research into the experience of designing.

While both design paradigms (technical rationality and reflective practice) offer different benefits, Dorst (1997) demonstrated, through a protocol analysis that the paradigm of design as reflective practice is a closer fit to design-as-it-is-experienced in practice. Dorst (1997) claimed that there has been, in design research, a lack of attention paid to the experience of designing. He provided the following argument for undertaking research into the experience of designing:

A reason to concentrate upon designers' experiences is that the decisions designers take in their multi-step process of designing are 'controlled' by the perceptions of the designers themselves. So the experiences of designers working on a problem are an integral and vital part of design activities. The understanding of their design experiences is an indispensable ingredient for any real understanding of design activities (ibid: 19).

Dorst also made the following recommendation, highlighting the possible benefits of furthering our understanding of the experience of designing:

Design methodology should cooperate closely with the design community. This could lead to phenomenological descriptions of design that are very useful at this stage in the development of design sciences, and open up new subjects for study, like the professional development of a designer and the role that reflection plays in this. It could give the cooperating designers more tools to reflect on the fundamentals of their working style and on the industrial profession (ibid: 174).

In the constructionist paradigm of design as reflective practice the designer is placed in a central role in design activities. As such, under this paradigm, no explanation of design activities can legitimately be forwarded without including the shaping actions and influence of the designer. In forwarding this review the next section focuses on Schön's theory of reflection-in-action and the paradigm of design as reflective practice.

2.4 - Design as Reflective Practice

2.4.1 – Section purpose

This section focuses upon reflective practice as espoused by Schön. The purpose of this review is twofold: 1) to illustrate that, in Schön's action-orientated theory, the experience of the reflective practitioner is left under-addressed; and 2) to highlight and communicate key areas of reflective practice that can be investigated through an empirical study.

2.4.2 - Introducing the paradigm of design as reflective practice

Schön (1983) begins his argument by setting out a conflict between professionals' traditional patterns of practice and knowledge and their situation of practice, which is defined by 'complexity, uncertainty, instability, uniqueness, and value conflict' (ibid: 18). This conflict arises, according to Schön, because the prevailing positivist paradigm amongst professional bodies, of technical rationality (or rational problem solving), fails to account for practical competence in divergent situations. Technical rationality can be applied with scientific rigour to solve problems, when problems are stable and end goals are fixed and clear (Simon, 1996). However, in a criticism of technical rationality, Schön questions its relevance in relation to professional activities where end goals are not clear and fixed.

Where ends are confused and conflicting, there is as yet no “problem” to solve [...] it is through the non-technical process of framing the problematic situation that we may organise and clarify both the ends to be achieved and the possible means of achieving them (Schön, 1983: 41).

In an attempt to address the dilemma and balance between rigour and relevance, Schön focuses upon acts of intelligence within situations of uncertainty, developing an epistemology of practice, which places technical rationality within a broader context of reflective inquiry. Schön describes acts of intelligence in situations of uncertainty and uniqueness, as professional artistry.

2.4.3 - Design as a reflective conversation

Designing in its broadest sense involves complexity and synthesis [...] designers put things together and bring new things into being [...] a designer is one who converts indeterminate situations to determinates ones. Beginning with situations that are at least in part uncertain, ill defined, complex and incoherent, designers construct and impose a coherence of their own [...] their designing is a web of projected moves and discovered consequences and implications, sometimes leading to reconstruction of the initial coherence – a reflective conversation with the materials of a situation (Schön, 1987: 41-42).

In Schön’s (1987) description of designing:

- a) The situation of practice is ill defined, uncertain and complex; goals are unclear; and solutions are discovered.
- b) The professional practitioner’s role is to bring order to the situation, converting indeterminate situations to determinates ones, and bringing new things into being through their actions and inquiries.
- c) The practitioner engages with the situation in a reflective inquiry. The inquiry functions through the actions of: naming elements of the situation to attend to, framing the problem of the situation, moving through action toward a solution, and reflecting and evaluating the consequences of the previous actions.

2.4.4 - The designer within the reflective practice paradigm

The paradigm of design as reflective practice is founded on the more general paradigm of constructionism. According to Schön designers are makers in the broader constructionist sense:

They frame problems and shape situations to match their professional understanding and methods, they construct situations suited to the roles they frame, and they shape the very practice worlds in which they live out their professional lives (Schön, 1987: 42-43).

In this view of designing, means and ends are framed interdependently in problem setting and the designer's inquiry into that problem setting becomes a transaction with the situation in which knowing and doing are inseparable.

In constructionist epistemology, perception is a process of actively constructing a view of the world. The subject's perception of the world, their goals and aims in constructing this personal world, and the situational context are important influences on the constructed view of the world. Therefore, within this paradigm, human behaviour cannot be understood without including this personal constructed world-view. Design as reflective practice concentrates upon the structuring role of the designer: the designer is centrally important to design activities.

Through the execution of move-testing experiments, a designer is actively constructing a view of the world based upon their experiences; therefore, developing our understanding of designers' experiences is vital to our appreciation of design activities within this paradigm. In this theory of design, designers work by naming the relevant factors within the situation, framing a problem in a certain way, making moves toward a solution and evaluating those moves through reflection. Framing activities are based on an appropriate application of a repertoire of precedent (Schön, 1983: 137-140), an underlying background theory, which corresponds with the designer's view about design problems and their personal goals. According to Lawson (2004 & 2006) background theory, or guiding principles, are seen to change slowly over time with the personal and professional development of the designer.

2.4.5 – Knowing-in-action and reflection-in-action

Schön uses the concepts of knowing-in-action and reflection-in-action to capture two different knowing modes that can operate within action situations. Positioned against the tacit knowledge of knowing-in-action, Schön describes how the reflective practitioner rigorously experiments using reflection-in-action when faced with situations of uncertainty.

Schön describes knowing-in-action in two different ways: (1) 'the sorts of knowledge we reveal in our intelligent actions' (Schön, 1987: 22) and (2) smooth sequences of activity, recognition, decision, and adjustment that flow without having to 'stop and think about it'. Schön's first definition of knowing-in-action, moves beyond his epistemic standpoint of 'tacit knowledge' (Polanyi, 1966; 1969a & 1969b) and implies reference to particular actions and specific pieces of knowledge; although it is unclear what knowledge is being referred to and what exactly constitutes intelligent actions. The second definition describes spontaneous activity resulting from learnt actions that allow a particular purpose to be achieved without planning or difficulty. There are, however, occasions where knowing-in-action is insufficient.

A familiar routine produces an unexpected result; an error stubbornly resists correction; or, although the usual actions produce the usual outcomes, we find something odd about them because, for some reason, we have begun to look at them in a new way. All such experiences pleasant or unpleasant, contain an element of surprise. Something fails to meet our expectations. In an attempt to preserve the constancy of our usual patterns of knowing-in-action, we may respond to surprise by brushing it aside, selectively inattending to the signals that produce it. Or we may respond to it by reflection (Schön, 1987: 26).

Schön divides reflective responses to the effective breakdown of knowing-in-action into two kinds: reflection-on-action and reflection-in-action. The division of the categories of reflection are based upon their relation, in time, to the task situation. Reflection-in-action depends upon being in 'an action present – a period of time, variable with the context, during which we can still make a difference to the situation at hand – our thinking serves to reshape what we are doing while we are doing it' (op. cit.). Schön (ibid: 28) describes an idealised sequence of moments that define the pattern of inquiry he calls reflection-in-action:

1. There is a situation of action to which we bring spontaneous, routine responses. These reveal knowing-in-action that may be described in terms of strategies, understandings of phenomena, and ways of framing a problem. The knowing-in-action is tacit, spontaneously delivered without conscious deliberation; and it works, yielding intended outcomes so long as the situation falls within the boundaries of what we have learned and treat as normal.

2. Routine responses produce a surprise that does not fit the categories of knowing-in-action. Inherent in a surprise is the fact that it gets our attention, we become aware of an unexpected event.
3. Surprise leads to reflection within an action-present. Reflection is at least in some measure conscious, although it need not occur in the medium of words. The unexpected event and the knowing-in-action that led to it are both considered as is the way the reflection has been framed.
4. Reflection-in-action has a critical function: questioning the assumption structure of knowing-in-action. We think critically about the thinking that got us into this fix, or this opportunity; and we may, in the process, restructure strategies of action, understandings of phenomena, or ways of framing problems.
5. Reflection gives rise to on-the-spot experimentation. We think up and try out new actions intended to explore the newly observed phenomena, test our tentative understandings of them, or affirm the moves we have intended to change things for the better.

Schön presents a mechanism of design, which describes design activities on a detailed level. Reflection-in-action is a process of naming, framing, making moves and evaluating them through reflection. In the naming step the objects to be considered in the design situation are selected. In the framing step these named entities are put into context, and an overall perspective on the design task is constructed. In making a move the designer takes experimental action based on the naming and framing of the design task, and the action is then evaluated through reflection.

Schön (1983) highlights some conditions of good reflective practice. Good reflective practitioners will:

- Shift from generating ‘what if’ proposals to the examination of implications;
- Oscillate between the whole and the parts of the problem or solution;

- Progress from the tentative adoption of a move or frame to eventual commitment;
- Compile a wide repertoire of examples to be used as moves or frames in future projects;
- Be fluent in the construction and use of 'virtual worlds' (sketching and modelling the future proposal);
- Experiment rigorously when striving to make the situation conform to their view of it while remaining open to evidence of their failure to do so;
- Be willing to enter into new confusions and uncertainties. They must commit deeply to their constructed reality (naming and framing activities) and their exploration of it, while being open and willing to recognise that a frame or the potential solutions are not fitting the situation and re-enter the state of uncertainty.

If these are conditions of good reflective practice that we should see in a good reflective practitioner, it could be asked:

- 1) Where within a reflective inquiry and why do difficulties occur?
- 2) How should a reflective practitioner improve and develop their practice?
- 3) How does the reflective practitioner effectively manage their reflective inquiry?

In summary, Schön sees reflection-in-action as a reflective conversation with the materials of a situation, which emerges when knowing-in-action reveals unexpected events. An effective conversation allows the person to experiment and define: new ways of responding to familiar situations; ways to respond to unfamiliar, uncertain and conflicting situations; and or new ways to frame their thinking about the situation and their responses which indicates new methods of response.

2.4.6 - Schön's architectural protocol

In the example, from Architecture, provided by Schön (1983), we are shown dialogues between a student, Petra, and a tutor, Quist. In the protocol and the analysis of the protocol there is a clear demonstration of the functional process of a reflective inquiry (Schön, 1983: 93-102):

- Petra is stuck;

- Quist criticises her problem framing and resets the problem, additionally highlighting one of his guiding principles;
- Quist experiments, using a virtual world (sketching), exploring the consequences of the problem frame he made;
- Quist makes a number of experiments (moves) and evaluates them using terms describing criteria of one or more design domains;
- The experimental moves all imply further problems and consequences, which are explored through further moves, each move is seen as a local experiment contributing to the global experiment of reframing the problem;
- According to Schön, Quist 'reflects on the unexpected consequences and implications of his moves, he listens to the situation's back talk, forming new appreciations which guide his further moves' (Schön, 1983: 94);
- Quist justifies the problem reframing by discovering, through a self-assessment, that the new geometry works, based upon an imagined user experience of the space.

The protocol is taken from a twenty-minute design review and while it illustrates the process and structure of reflective inquiry it also leaves out information essential to furthering our understanding of design as reflective practice.

The information captured in the protocol (dialogue, sketches, commentary of behaviour) presents a particular view on the mental processes occurring during this example of reflective inquiry. One could ask:

- 1) Did Quist express all of his thinking out loud as it occurred to him?
- 2) What other thinking occurred that Quist did not verbalise?
- 3) Can Quist verbalise all of his thinking?
- 4) To what extent is Quist aware of all of his thinking?
- 5) Are other important cognitive activities going on which shape Quist's designing?
- 6) What it is like, experientially, to be in a reflection-in-action moment?

Quist does not seem to struggle in his reflective-in-action (designing) (not surprising if he wrote the design brief). This leads to a number of questions:

- 1) Is designing actually easy once you have learnt about and acquired the skills of reflective inquiry?
- 2) Is designing an emotionally neutral activity?
- 3) Are there any typical difficulties that practitioners face when undertaking reflective inquiry, or are they all idiosyncratic, or discipline and context specific?
- 4) Did Quist perceive this design problem as challenging, or did it fall into the category of knowing-in-practice; how much of Quist's dialogue was for Petra's benefit?

The protocol examines a particular timeframe (approximately twenty minutes), and this inherently raises further questions:

- 1) To what extent did the reflective inquiry take the shape presented as a consequence of the time given for that conversation?
- 2) How does time affect reflection-in-action?
- 3) If the time span for the conversation had been ten minutes, one hour, three weeks, how would this have affected the resultant reflective inquiry?

2.4.7 – Research questions based upon reflective design practice

The basic research question can now be specified further and made into a set of developed research questions, which can be used to guide the construction of conjectures and help shape the exploration of the experience of designing in the empirical study.

Schön describes the good reflective practitioner as being willing to enter into new confusions and uncertainties, but does not provide a good account of states of confusion or the experience of uncertainty and how these affect reflective inquiries. The conversations that Schön (1983 & 1987) presents, focus upon illustrating how naming, framing, making moves toward solutions and evaluating through reflection develop through dialogue, focusing upon design content and action (descriptions of solutions and frames; and explanations of moves and reflective behaviour). Schön does not highlight what it is like, experientially, to be in a reflection-in-action moment. Nor does Schön focus upon the affect a practitioner's mental and emotional state has upon their ability to have effective conversations. The role of a designer's

awareness and their mental and emotional conditions is a potentially fruitful area of investigation in relation to reflective practice. Research questions that could be investigated through an empirical study are:

- What is it like, experientially, to be in a reflection-in-action moment?
- What are the situations that place expert designers in greatest turmoil?
- According to Schön, the recognition of uncertainty, by a practitioner, provides the opportunity to respond with reflection, transforming knowing-in-action to reflection-in-action. How do practitioners experience that transition; how do designers cope with uncertainty?

Schön's architectural protocol is described as an example of a reflective conversation with the materials of the situation. The phrase 'materials of the situation' is somewhat ambiguous. Schön illustrates the role and function of naming elements of the situation to attend to, framing and reframing the problem, experimenting with propositions and consequences to move toward acceptable solutions and evaluating through reflection upon the appropriateness of the naming, framing and moving activities. However, what role and function do practitioners' non-verbal physical and mental reactions play, do they also provide 'talk-back' on the inquiry? A research question that could be usefully investigated is:

- Do non-verbal reactions to reflective inquiry influence practitioners' reflection-in-action; can practitioners reflectively verbalise these experiences?

The concept reflection-in-action implies that the practitioner is aware and engaged because the term reflection describes the act of careful consideration and dialectic. However, awareness is not a binary event (Austin, 1999) and the role of awareness in reflective practice could be made more explicit and explored further. When one's awareness has disengaged from the task situation reflection-in-action has ceased, the conversation with the environment has broken-off, and therefore, one is no longer designing. Schön's description of designing: a reflective conversation with the materials of the situation is very insightful but what is not highlighted is how temporal that connection can be: the mind often drifts away from a focused task. Research questions that could be investigated through an empirical study are:

- What role does the practitioner's awareness play when undertaking design activities?

- Do practitioners develop strategies or employ tactics to encourage engagement with designing activities?

2.5 – Design expertise

2.5.1 – Section purpose

The intention of this section is to consider the literature regarding design expertise (Chi, Glaser, and Rees, 1982; Ericsson and Smith, 1991; Cross, Christiaans, and Dorst, 1994; Lawson, 1994; Ericsson and Lehmann, 1996; Göker, 1997; Atman, Chimka, Bursic, and Nachtmann, 1999; Casakin and Goldschmidt, 1999; Etalâpelto, 2000; Cross, 2001; Ahmed, Wallace, and Blessing, 2003; Cross, 2003; Lawson, 2003; Popovic, 2003; Cross, 2004; Dorst, 2004; Lawson, 2004; Cross, 2006; Lawson, 2006). The objectives of this literature survey are to: establish if and where the literature on design expertise relates its finding to the experience of novice or expert designers; to establish if there are studies and theories, which would develop our understanding of the designing experience if tested or extended through this study; and to define developed research questions to direct the construction of an empirical study if sufficient theoretical foundations are identified.

Before understanding expertise in design it is important first to explore the idea of expertise itself. Various levels of expertise have been identified through variations in task related performance; notable in this area is the seminal work of Dreyfus & Dreyfus (1980 & 1986).

2.5.2 – Skill acquisition and expertise

Dreyfus and Dreyfus (1980) propose a five-stage model of the mental activities involved in direct skill acquisition. They argue that ‘skill in its minimal form is produced by following abstract formal rules, but that only experience with concrete cases can account for higher levels of performance’ (Dreyfus and Dreyfus, 1980: 5). This theory was proposed, based upon empirical studies, in opposition to the theory that proficiency increases as one moves from the concrete to the abstract. The five-stage model illustrates the progressive changes in a performer’s ways of seeing their

task environment. According to Dreyfus and Dreyfus the five skill acquisition stages are²: Novice; Competence; Proficiency; Expertise and Mastery.

Stage 1: Novice

In the beginning the skill performer learns to recognise objective facts and features, relevant to the skill. The task environment is decomposed into context-free features, which can be recognised without the benefit of experience and are therefore, non-situational. The beginner is given rules for determining his/her actions. Improvements are made through monitoring processes, where feedback allows behaviour to conform more completely to the rule. On account of this, the novice feels very little or no responsibility for the result of their actions. As English (2006) points out, when applying deductive reasoning responsibility rests with the reason; or in this case, the rule.

Stage 2: Competence

A performer can only be described as competent after considerable experience actually coping with real situations. The competent student understands their environment, is able to identify recurrent situational patterns and develops guidelines, which integrate as many situational patterns as possible and indicate appropriate actions.

Competent performers, therefore, must decide for themselves in each situation what plan or perspective to adopt without being sure that it will turn out to be appropriate. Given this uncertainty, coping becomes frightening rather than merely exhausting. Prior to this stage, if the rules don't work, the performer, rather than feeling remorse for his mistakes, can rationalise that he hadn't been given adequate rules. But since at this stage, the result depends on the learner's choice of perspective, the learner feels responsible for his or her choice [...]. The learner is naturally frightened, elated, disappointed, or discouraged by the results of his or her choice of perspective. And, as the competent student becomes more and more emotionally involved in his task, it becomes increasingly difficult for him to draw back and adopt the detached maxim-following stance (Dreyfus, 2002: 4-5).

² In Dreyfus and Dreyfus (1986) the skill stage of mastery is not mentioned; additionally, a stage called 'advanced beginner' is placed between novice and competence. The advanced beginner is seen to use a combination of situational and non-situational concepts and information to inform action.

Stage 3: Proficiency

The proficient performer has increased practise of a wide variety of whole situations and now determines situational patterns and their meaning in relation to the achievement of a long-term goal. A hierarchical procedure of decision-making is organised, adopted and stored in memory to provide a basis for the future recognition of similar situations. Given a set of situational patterns and their salencies, the performer uses a memorised principle (maxim) to determine the appropriate action. The proficient performer responds to patterns without decomposing them into components.

[Due to the performers involvement] the resulting positive and negative emotional experiences will strengthen successful responses and inhibit unsuccessful ones, and the performer's theory of the skill, represented in rules and principles, will gradually be replaced by situational discriminations, accompanied by associated responses. Only if experience is assimilated in this embodied, atheoretical way do intuitive reactions replace reasoned responses (Dreyfus, 2002: 5).

Stage 4: Expertise

Up to this stage, the performer needed some sort of analytical principle (rule, guideline, maxim) to connect their grasp of the general situation to a specific action. The expert performer has a vast repertoire of experienced situations and each specific situation they encounter immediately dictates an intuitively appropriate action. Dreyfus and Dreyfus indicate that at this stage of performance the performer is less likely to distinguish between themselves and the situational elements, rather the expert experiences fluid performance where all elements are involved in a single interdependent transaction. This idea is similar to the concept of 'Flow' proposed by Csikszentmihalyi (1975; 1988 & 2002).

Stage 5: Mastery

Although Dreyfus and Dreyfus see expertise as the highest level of mental capacity they describe a further stage of performance, which transcends this high level. This phase of performance is associated with intense absorption.

Masterful performance takes place when the expert, who no longer needs principles, can cease to pay conscious attention to his performance and can let all the mental energy previously used in monitoring his performance go into

producing almost instantaneously the appropriate perspective and its associated action (Dreyfus & Dreyfus, 1980: 14).

Table 2.5: Skill level and mental function (Dreyfus and Dreyfus, 1980: 15) (original in colour)

Skill Level Mental Function	Novice	Competent	Proficient	Expert	Master
Recollection	Non-situational	Situational	Situational	Situational	Situational
Recognition	Decomposed	Decomposed	Holistic	Holistic	Holistic
Decision	Analytical	Analytical	Analytical	Intuitive	Intuitive
Awareness	Monitoring	Monitoring	Monitoring	Monitoring	Absorbed

According to Dreyfus and Dreyfus, Table 2.5 shows:

The development depicted in row 1 becomes situational when experienced-based similarity recognition is achieved. This first occurs when the performer is able to recognise situational patterns; The development depicted in row 2 becomes holistic when the performer perceives similarity in terms of whole situations, accompanied by the recognition of salience; In row 3, the performer refines the whole situation to the point that unique decisions intuitively accompany situation recognition without the need of conscious calculation; In row 4, the analytical mind, relieved of its monitoring role in producing and evaluating performance, is quieted so that the performer can become completely absorbed in his performance (ibid: 15).

Dreyfus and Dreyfus present some interesting ideas, but how applicable are they to design, is it possible to directly relate the levels of skill acquisition to the activity of designing? The difference between the skill stage novice and the skill stage competent is note worthy in relation to design activities. The novice maintains a detached view of the skill and their participation in the activity. While learning and following rules to achieve a completed task, they are concerned with how well they understand and follow the rule. When considered in terms of creative, or creating, activity, this situation appears close to following a set of instructions (this could be building flat-pack furniture, or baking a cake), which is easily argued as an inadequate description of designing. The competent performer is intimately involved with shaping their understanding of the task and the resultant actions through reflection and active interpretation. This stage seems to describe some of the important characteristics of a reflective practitioner under the paradigm of design as reflective practice.

The relationship between levels of skill acquisition and reflective practice is unclear and raises a number of questions:

- 1) Can design as reflective practice be considered in terms of skill acquisition?
- 2) If design as reflective practice can be treated as a coherent skill, can designers' designing performance be understood by and matched to Dreyfus and Dreyfus' skill acquisition stages?
- 3) If design as reflective practice is not treated as a coherent skill, are there discrete skills one can acquire as a reflective practitioner?

The skill stage 'expertise' describes how a performer's encounter with a situation immediately dictates an intuitively appropriate response, is this, in Schön's terminology, knowing-in-action. If the skill acquisition stage 'expertise' is comparable to knowing-in-action, then it is difficult to conclude that design as reflective practice can be treated as a coherent skill and designing performance described in terms of skill acquisition. For Schön, the central concept in designing was the use of reflection-in-action to investigate the breakdown of knowing-in-action. In Section 2.4.3, Schön is presented as describing designing as occurring in situations of practice that are ill defined, uncertain and complex, where goals are unclear and solutions are discovered. There seems to be a significant dichotomy between the performance of skill stage four, 'expertise', where performance flows intuitively as the performer encounters the situational context and Schön's description of design activity and the reflective practitioner's situation of practice. If a person's performance of a task matches the description of 'expertise' or 'mastery', could it be claimed that this person is not performing design as reflective practice? An individual may be undertaking a creative activity but due to their experience of similar situations, there is, for them, no problem solving and no challenge. In this situation a performer would be applying their design expertise gained through numerous experiences, which has the effect that they no longer design. Is this an over simplification, or does it, by implication, require us to reconsider, and think carefully about, the moments of 'design' activity within the boarder activities of a professional, or is Schön's description of designing too limiting? Perhaps the real achievement, and what marks some designers out as expert, is their ability to reframe the overall activity in such a way as to create challenge and ensure they are required to reflect-in-

action, problem solve, employ creative thinking and maintain their engagement in design as reflective practice.

Dreyfus and Dreyfus do highlight some interesting emotional responses that are generated due to the performer's conscious involvement with the situation and how the performer relates to and learns from those responses. This may, despite the above objections, be a positive area for further investigation.

2.5.3 – Design expertise

Dorst (2003), influenced by Dreyfus and Dreyfus, maps out and proposes five levels of design expertise. Dorst applies the Dreyfus and Dreyfus model of the stages in skill acquisition to distinguish five different ways of perceiving, interpreting, structuring and solving problems. Dorst does not contribute to the descriptions of the conceptual categories but does usefully make the discernment between the detached view of objective reality belonging to the advanced beginner and the involvement, reflection, and active interpretation of the competent designer. Dorst highlights that these fundamentally different ways of looking and relating to problematic situations can co-exist in a design project: 'nobody is an expert on all aspects of design, on some problems we might be novices, at others we might be competent, or expert' (Dorst, 2003).

This work does not directly address the concerns raised above about the relationship between levels of skill acquisition and design as reflective practice; however, Dorst does put forward the following statement:

The level of expertise potentially is a central notion in the description of design practice: the choice of paradigm for describing and supporting design processes depends on the level of expertise that the designer has. The rule-following behaviour of the novice and the advanced beginner needs to be described within the framework of the Rational Problem Solving paradigm. The behaviour of the competent designer and higher can be described using both paradigms, with the Reflective Practice paradigm becoming more relevant the closer we are to expert behaviour (op. cit.).

According to Lawson (2004) the acquisition of expertise follows the development of six kinds of knowledge (refer to Table 2.6). It is this knowledge that allows the designer to proceed upon the ladder stages described by Dorst and Dreyfus and

Dreyfus. Lawson provides an interesting version of the route to design expertise and also highlights the central importance of the role of imagination and ways of seeing. According to Lawson, ‘design knowledge depends heavily upon precedent, experience and upon an appreciation of the way things could be’ (ibid: 117).

Table 2.6: The acquisition of expertise (based upon Lawson, 2004) (original in colour)

<i>The Acquisition of Expertise</i>	The development of six kinds of knowledge (Lawson, 2004)
Stage 1. The formation of ‘design schemata’	
The acquisition and development of concepts and schemata commonly used in the design domain.	
Stage 2. The ‘acquisition of precedent’	
A body of experiential or episodic knowledge potentially useful in designing; a pool of design situations and solutions, which can be drawn upon combined etc. The pool of precedent is filled not only by the designers’ own creations but also by the mass of available material of existing and recorded design solutions. There is seen to be a two-way interactive process between the acquisition of precedent and the formation of design schemata.	
Stage 3. The ‘development of guiding principles’	
‘Sets of ideas, beliefs, and values that operate for the designer spanning many projects rather than just one and in most cases develop in a coherent way over their career’ (Lawson, 2004: 112). ‘Taken together these principles represent an intellectual programme which appears to have a strong influence on individual projects but more fundamentally appears to be at the root of the satisfaction these designers take from their work’ (ibid). For Lawson the guiding principles are brought to bear and give the problem structure and direct the framing of the situation. In the application of these principles they become more developed, elaborate and clearly articulated. The principles represent not only the ideals and values of the designer but a growing authoritative body of knowledge about how to realise those principles through design. The set of principles filter and frame the development of precedent.	
Stage 4. The ‘ability of recognition’	
The experience of design experts allows them to recognise, without analysis, the features of well-established precedents. Lawson sees the experienced designer as interacting with the problem situation by recognising possible solutions rather than recognising the problem directly. Through sketching possible solutions, or fragments of solutions the designer recognises possibilities from their stored pool of precedent of reference material.	
Stage 5. ‘Design gambits’	
A repertoire of strategies for solving recognisable design problems. Experienced designers develop a kind of knowledge with which they structure their design process.	
Stage 6. The ‘situated nature of design knowledge’	
Some essential knowledge needed to perform the task lies outside the problem itself but in knowledge of situations in which the problem resides. The necessary skill needed to address ill-defined design problems is a creative one of imagining the many unspecified situations in which the problem might occur and drawing solutions from them.	

Lawson’s work on the acquisition of expertise, at the early stages, resonates with the work of Dreyfus and Dreyfus. Stage one, the formation of ‘design schemata’ appears to describe the knowledge that would be developed by the novice while learning the basic rules, terminology and process structures of a design domain. Stage two, the ‘acquisition of precedent’ perhaps describes the kind of knowledge developed by the competent performer as they experience situations in practice. Lawson usefully highlights that the pool of precedent is added to not only by the designer’s own creations but also by their understanding and interpretation of the

mass of solutions material available to them. Stage three, four, five and six depart from the relationship with the levels of skill acquisition, but seem to be useful ways of thinking about the types of knowledge designers develop and how these relate to framing activities and the execution of those frames under the paradigm of reflective practice. As highlighted in Section 2.2.3, Lawson's research focuses on understanding design knowledge and his presentation does not contribute to our understanding of the experience of designing; although it would be expected that describing the design experience would have a relationship to these concepts.

Cross (2001 & 2006), contributed to our understanding of design expertise by presenting his findings on the creative strategies of three outstanding designers: Victor Scheinman, Kenneth Grange and Gordon Murray. The study with Scheinman was based on a concurrent protocol analysis and the studies with Grange and Murray were based on retrospective interviews. There are, therefore, methodological discrepancies and inconsistencies between the studies and as such we must be careful when interpreting the relevance and accuracy of the analysis and conclusions. Cross concluded that there were three strategic aspects that appear to be common in the creative expertise of the three designers:

- 1) Taking a broad 'systems approach' to the problem, rather than accepting narrow problem criteria;
- 2) 'Framing' the problem in a distinctive and sometimes rather personal way; and
- 3) Designing from 'first principles' (Cross, 2006: 97).

Cross' studies added a further perspective on the observation that experts use a 'breadth-first' approach whereas novices apply a 'depth-first' approach (Ericsson and Smith, 1991). The 'depth-first' approach is seen to originate from the limited experiential knowledge of novices where problems are described at very concrete and specific levels (Popovic, 2003). Cross, produced a general model of these strategic similarities, which is included as Figure 2.7.

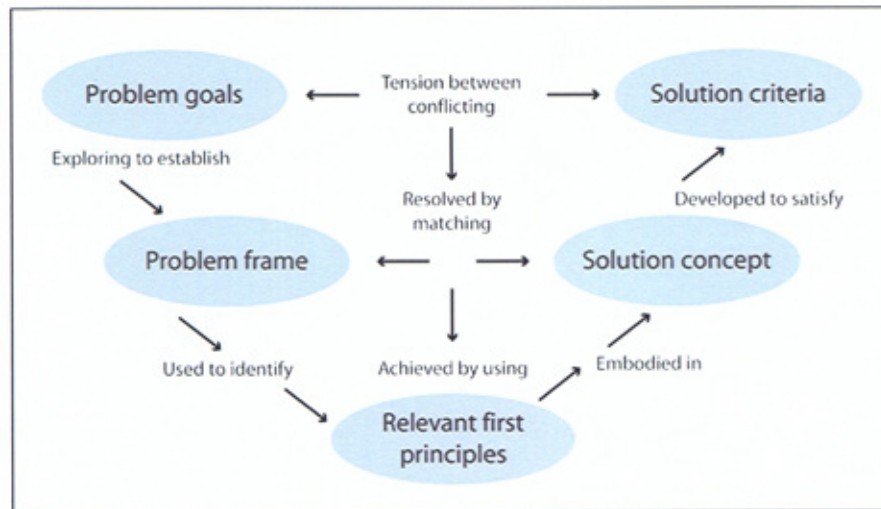


Figure 2.7: A general model of the creative strategies of expert designers (Cross, 2006: 96)

It is difficult to know how to apply this model to benefit design practice or education. Beyond its use as a reflective tool, its relevance to practice is poor. It raises questions to which the answers are not obvious: which principles are the 'first principles', do experts have first principles that are more inclusive or abstract than less experienced designers; or is one of the skills of expert designers that they frame problems in a manner which means the designer has to address a much more fundamental problem than was immediately suggested? Why does framing need to be distinctive and personal, and how does this relate to professionalism and identification of frames appropriate to the various project stakeholders?

2.5.4 – Research questions based upon design expertise literature

In the body of literature about design expertise there has not been identified a source, which relates descriptions of levels of expertise to the experience of designing, although Dreyfus and Dreyfus (1980) did describe experiential components to their levels of skill acquisition. It was argued that, Dreyfus and Dreyfus' skill acquisition level of 'expertise' is in conflict with the description of designing as proposed by Schön. This argument disagrees with the conclusion of Dorst who claimed that the Reflective Practice paradigm becomes more relevant the closer we are to expert behaviour. This issue could be further investigated, although, it is outside this study's scope.

After conducting the literature review into design expertise it is felt that there is not sufficient connection to the core question of this study to develop specific research questions.

2.6 - What expert designers say about designing

2.6.1 – Section purpose

The purpose of this section is to review some of the literature, relating to the experience of designing, which has been conducted by interviewing expert design practitioners (architects, engineers and product designers). This review will be used to create a set of developed research questions to guide the construction of the empirical stage of this study.

There have been a number of significant studies that have engaged successful design practitioners in reflective discussion, usually through informal conversations (unstructured interviews), formal interviews (usually semi-structured) or a combination of both (Davies, 1985; Davies & Talbot, 1987; Maccoby, 1991; Roy, 1993; Candy and Edmonds, 1994; Lawson, 1994; Cross and Clayburn Cross, 1996). This section focuses on the work of Davies and Talbot (1987), Lawson (1994), Cross and Clayburn Cross (1996) and uses Cross's (2006) meta-synthesis as a contextualising introduction. The section concludes by drawing on specific points from the review and presenting sets of research questions.

2.6.2 – What expert designers say

Cross (2006) presents a meta-analysis of 'what expert designers say about designing', through which the conclusions are reached that design is rhetorical, explorative, emergent, opportunistic, abductive, reflective, ambiguous and risky. What follows is a summary of his explanations of these conclusions.

According to Cross design is rhetorical, which means it is persuasive. Design is also rhetorical 'in the sense that the designer, in constructing a design proposal, constructs a particular kind of argument, in which a final conclusion is developed and evaluated as it develops against known goals and previously unsuspected implications' (Cross, 2006: 51). Lasdun (1965) is quoted by Cross, as an outstanding architect, who captured the rhetorical nature of design:

Our job is to give the client ... not what he wants, but what he never dreamed he wanted; and when he gets it, he recognizes it as something he wanted all the time (Lasdun quoted by Cross, 2006: 52).

The quote by Lasdun, also suggests to Cross, that, 'design is not a search for the optimum solution to the given problem, but that design is explorative' (op. cit.). As Jones (1991: 39) highlighted, in contrasting his view of design activity with that implied by technical rationality: design is about creating and uncovering 'the new'.

Cross, drew from the work of Davies (1985), using a comment made by furniture designer Harcourt, to convey the vagueness, or slipperiness, of the relationship between problem and solution, which implies that design is emergent:

As a matter of fact, the solution that I came up with wasn't a solution to the problem at all ... But when the chair was actually put together, in a way it solved the problem quite well, but from a completely different point of view (Harcourt quoted by Davies, 1985, cited in Cross, 2006: 52).

This conclusion also resonates with Schön's (1983 & 1987) view that designers, when operating in uncertain and ambiguous situations, create order and consequence as they engage in design as reflective practice. This conclusion means that, in design, the problem and the solution emerge together.

Cross, states that, 'the ill-defined nature of design problems means that they cannot be solved simply by collecting and synthesising information' (2006: 52). Cross argues that this means design is opportunistic; and therefore, the path of exploration cannot be predicted in advance. To reinforce this point Cross uses a quote from the architect MacCormac (1976):

I don't think that you can design anything just by absorbing information and then hoping to synthesise it into a solution. What you need to know about the problem only becomes apparent as you're trying to solve it (MacCormac quoted by Cross, 2006: 52)

Contrasting inductive and deductive reasoning Cross describes the reasoning process of designers as abductive. Abductive reasoning, according to Cross, is a thinking process that design practitioners often describe as intuition.

In Cross' view, another characteristic of design thinking is that it is reflective. Cross asserts that designers' 'reflective conversations' describes the relationship between internal mental processes and their external expression and representation in sketches. Through the medium of sketch, half formed ideas can be expressed and reflected upon (i.e., considered, revised, developed, rejected and returned to). This characteristic is, undoubtedly, close in meaning with Schön's extensive presentation and discussion of design as reflective practice.

For Cross, design is ambiguous, uncertainty in the design process is both the designer's joy and frustration. As an illustration of designers accepting the fact that design is ambiguous, Cross claims:

Designers will generate early tentative solutions, but also leave many options open for as long as possible; they are prepared to regard solution concepts as necessary, but imprecise and often inconclusive (ibid: 54).

The last point that Cross makes is that design is risky; often taking considerable risk makes a design reputation.

The descriptive design concepts that Cross presents (design is: rhetorical, explorative, emergent, opportunistic, abductive, reflective, ambiguous and risky), although explained, raise a number of questions. As a piece of research, how is this list of themes to be interpreted? Are these themes meant as a taxonomy of design intelligence? Cross never makes this argument, he states that the purpose of the presentation is to elicit a disciplined conversation (Cross, 1999) about the natural intelligence of highly developed design ability. If we examine the descriptive themes, that Cross presents, there is a lack of clarity about how a disciplined conversation should be entered into. A number of the themes clearly overlap: if design is explorative how could it not be emergent. Not all of the themes are of the same conceptual decomposition: some themes refer to the design situation, others refer to the goals of design outputs and some refer to the type of inquiry a designer engages. Additionally we could ask: is design thinking or the design ability always like that; for example, are designers always taking risks; do expert designers take larger risks more frequently; is the risk in design the commitment to a design proposition faced with the uncertainty of the teams ability to execute that idea and for that idea to be well received by the client and market? What Cross presents appears to be a static

snapshot of design abstracted from context with no sense of change over time and little indication of place within designing processes.

Cross hoped to show that the concepts developed by design research describe the same experiences and perceptions recognised by design practitioners to be significant. To achieve this goal Cross selected various statements made by famous designers, extracting them from the contexts in which they were made, without comment upon the contextual and conceptual appropriateness of the quotes. It could be argued that Cross achieved his aim; however, there is no evidence of an attempt to illustrate differences of meaning and understanding and certainly there is no attempt to refute the claim that these themes match the experience and perceptions of design practitioners. Perhaps the quotes Cross used, and the themes he forwards, can be viewed as statements relating to a static 'ideal-type' of design thinking.

2.6.3 - Design in mind

In 1994 Lawson published a book that focused on examining the design process by interviewing expert designers. Lawson's inquiry focused around a number of central questions: what are the relationships between the architectural practice principal and the design team; where do designers begin; how do 'primary generators' and 'guiding principles' affect design activities; how do relationships with clients and users differ; what is the role of drawing in practice; and what is the role of technology in today's practice? A number of other themes are also developed in the text and some are worth further inspection in relation to this study.

Lawson presents MacCormac talking about the trials that occur in the design journey and the pain that designers go through. MacCormac is quoted as saying that the design journey can become 'terribly fraught... with people literally in tears' (MacCormac quoted by Lawson, 1994: 62). It is suggested that the 'big idea' keeps designers going and that the whole enterprise is 'unsustainable unless it's very idealistic':

This is not a sensible way of making a living, it's completely insane. There has to be this big thing that you're confident you're going to find. You don't know what it is you're looking for and you hang on (MacCormac quoted by Lawson, 1994: 64).

Lawson (ibid: 134) concludes that a strong the sense of purpose and a dedication to ideals and ideas is perhaps what bonds design teams together and the reason why designers work through such difficulties. Ritchie is also quoted as supporting this view:

Unless there is enough power and energy in this generative concept, you will actually not produce a very good end result, because there is this three years or so of hard work to go through and the only sustenance apart from the bonhomie of the people involved is the quality of this idea, that is the food. It's the thing that nourishes, that keeps you, you know every time you get bored or fed up or whatever you can go back and get an injection from it, and the strength of that idea is fundamental, it has to carry an enormous amount of energy (Ritchie quoted by Lawson, 1994: 86).

In the epilogue Lawson asks if there are any distinguishing characteristics of successful designers. In response to his question he answered that:

They all seem to have an extraordinarily inquisitive minds which led them into an endless search for new knowledge and understanding which they enjoy pursuing through a process of solving other people's problems. This further seems to lead them to be prepared to spend a great deal of time and expend considerable effort in working for their clients (ibid: 145).

Lawson also highlights that:

Design is painful and frustrating, but ultimately extremely satisfying process involving huge intellectual commitment on the part of the designer [...]. It is a process which needs slow and relaxed times as well as periods of intense activity (op. cit.).

There is clearly a relationship for design practitioners between the uncertainty of the design situation (inherent or stimulated) and the influence of design ideas when engaging with the difficulties and trails of design activities. Are engagements with the design situation stimulated by both, the fear and discomfort of uncertainty, and the attraction of and attachment to the conceptual certainty of creative events? Do designers stimulate situations of uncertainty, discomfort, pressure and stress from which they attempt to escape through creativity and hard work; and are design practitioners driven to achieve the elation of uncertainty resolution apparent in the 'big idea' and creative events? It is intended, through this study, to develop our understanding of the experience of designing, and therefore, focusing on the painful frustrations and satisfactions that designers experience would be beneficial.

2.6.4 - Wining by design

In 1996 Cross and Clayburn Cross published the paper, 'Winning by Design: the methods of Gordon Murray, racing car driver'. The case study looked to examine the working methods of a particularly successful designer operating in a highly competitive design domain, Formula One racing. The paper was based upon several informal conversations and a more formal taped interview. In the paper Murray suggests that innovative design comes down to people and their environment:

It comes from the environment and the situation you're in; you're governed by these regulations; you're in this sort of war situation; and you're desperate to try to think of things all the time – alongside all the normal design (improvement) processes which are more laborious... I can't tell you how hyper it is, relative to architecture, bridge design, furniture design.

You gotta go quicker, gotta go quicker. The pressure then to come up with something new becomes intense, and the responsibility is all yours, and you get sort of panicky, almost (Murray quoted by Cross and Clayburn Cross, 1996).

Cross and Clayburn Cross describe how the intense pressure, the fervour, the panic are integral aspects of Murray's process, methods, and working situation. The quotes by Murray suggest the following questions:

- 1) Within the context of design, is an environment of intense pressure and challenge a key component of highly creative individuals and teams?
- 2) Is a key quality of highly successful expert designers that they are better able to cope with the pressure, the responsibility and the discomfort than other people?
- 3) How important is the experience of stress and uncertainty within the challenge of design activities for expert designers?
- 4) For designers what are the contexts and situations that cause or heighten stress?
- 5) In a design environment where the pressure that is apparent in Formula One is not present, do we find successful designers stimulating stress and pressure as a component of their design experience? If so, how?
- 6) Is the state of mental discomfort necessary to stimulate creative events?

Cross and Clayburn Cross conclude with observations about the methods and approaches adopted by successful, innovative designers:

The goal is set at a high level, with clear objectives, and in direct terms which might even seem to be simplistic. It is this simple clarity which might make other people conclude that the goal is simply impossible. There is a holistic, systems view of the problem encapsulated in the goal. A clear concept of how to reach this goal is devised – sometimes by means of a sudden insight which comes when relaxing after deep immersion in the problem – and the solution details then cascade from the concept. Intense work is needed to develop, evaluate and refine the solution details, creativity is still ‘1% inspiration and 99% perspiration’. The clear, generative concept is not simply ‘found’ in the problem as given, but originated by the designer; it is not a matter of pattern recognition, but of pattern creation. This pattern creation process stems from conceptualizing in terms of the ‘first principles’ of the defined problem area (Cross and Clayburn Cross, 1996: 106).

The first section of the above quote suggests a self-imposed pressure. Cross and Clayburn Cross suggest that innovative designers frame or reframe the design situation in a way that creates significant challenge. This would appear to be a tactic imposed by the designer to enhance the pressure and stress of the design situation.

Cross and Clayburn Cross further suggest, about expert designers, that: ‘their personal motivation means that they are steeped in their chosen domain, and they are prepared when necessary to work obsessively at their chosen problem and solution’; ‘their working style, may not be a reflection of a personality trait, but a necessary aspect of creative work, which requires alternating intense effort with relaxation’; and ‘the innovative designer likes, perhaps needs, to work with a small team of committed co-workers who share the same passion and dedication’.

The paper ‘winning by design’ focuses on a case study of one individual; however, the conclusions, presented by Cross and Clayburn Cross, are intended to be ‘common features of a successful approach to innovative design’ (op. cit.). The authors state that they are able to draw these conclusions as there is: ‘sufficient striking similarities between this study [...] and other studies of innovators and creative designers’ (op. cit.). Cross and Clayburn Cross do undertake a comparison of their study with other studies of innovative and highly creative designers, but do not enter into a discussion about how the data was obtained in these studies and whether there is a sufficient quantity of subjects to make generalisable claims. Also, do these ‘common features’

always lead designers to success, are there no examples of designers working from first principles, combining intense effort and relaxation, using sketching as an explorative tool, working with a holistic systems view of the problem, and still, ultimately, being unsuccessful in their design efforts. If subjects are only engaged in discussion about successful projects then it is difficult to engage in a disciplined discussion about common features of successful innovative design, as there are no counterpoints.

2.6.5 – Experiencing ideas: identity, insight and the imago

Initiated by the research of Davies (1985), Davies and Talbot, in 1987, published a paper that examined the moment of insight as described in a series of in-depth interviews with Royal Designers of Industry (RDI). Davies and Talbot claim that ‘the formation of a personal sense of identity and experience of an ‘imago’ are considered as aspects of the creative process which led to awareness of higher levels of creative thinking’ (Davies & Talbot, 1987: 17). The paper explores what it means to experience having ‘the’ idea. In 1984, in-depth, life-history interviews were conducted with 35 RDI. The interviews were largely unstructured and participants were asked to talk about three areas of experience: biographical, career development and generating and implementing ideas.

Davies and Talbot compared their findings to research on insight by Wallas (1926), Eindhoven and Vinacke (1952) and Koestler (1964). The researchers refer to the four stage creative process as proposed by Wallas:

- 1) Preparation – an initial period leading to experience and recognition of a problem or inner conflict that is sufficiently arousing to motivate efforts to resolve it. A period of concentrated effort to solve the problem through routine, readily available or habitual actions.
- 2) Incubation – experience of frustration, tension and discomfort that follows the failure of customary processes to solve the problem leads to a temporary withdrawal from the problem. Perception of the problem from a different perspective and its formulation in a way that permits new orientations to a solution emerge.
- 3) Illumination – appearance of a tentative solution in a moment of insight often accompanied by a sense of exhilaration.
- 4) Verification – elaboration of a solution and testing it against ‘reality’ to reduce it to an exact form in which it can be communicated to relevant audiences (Wallas, 1926, cited in Davies & Talbot, 1987: 24).

Davies and Talbot claim that their research implies a major difference to Wallis' illumination stage, which describes illumination as the flash of insight in which a tentative solution appears; their studies suggest that some designers experience a moment in which they realise that an idea is exactly right, not tentative, but final. In these cases, according to Davies and Talbot, realising the idea as a physical object did not involve elaboration and validation of a tentative idea, rather it 'involved efforts to contrive the best possible match between the a final, perfect form in the internal world of mental events and an external, physical-world copy if it' (Davies & Talbot, 1987: 20). In their research, some participants described the development of ideas as a difficult process of growth, while others described occasions where it was easy and 'the' idea came to them early. When Davies and Talbot describe the experience of a perfect form, are they referring to a mental image of a design problem solution that details surfaces, reflections, textures, scale etc.; or are they referring to a mental appreciation and grasp of a solution's value, principles or direction, how specific and detailed are these experiences?

One of the central propositions made by Davies and Talbot is the idea of an 'imago'. The researchers, in the following quote, describe the meaning of this concept: 'an imago, then, refers to a state of consciousness, or being, in which there is experience of a final perfect form' (ibid: 21). They go on to say, 'one immediate consequence of imago experience seems to be that the person is motivated to seek it again and again as its rewarding aspects induce an addiction, a kind of eureka fix' (op. cit.). Davies and Talbot use the term 'being the knowing' to describe the experience of knowing when the idea is right, where 'this alternative form of knowing is sudden, effortless and certain. With the occurrence of the idea, anguish gives way to positive, pleasurable, even ecstatic feelings' (ibid: 22).

The evidence of the study, according to the researchers, suggests the central role of intuitive consciousness in the experience of an imago, but the researchers clearly differentiate between intuition and imago, as intuitions can be inaccurate or incorrect whereas imago is about absolute certainty. Davies and Talbot suggest that although ideas can occur at any time they seem 'most likely to occur when the person has to cope with significant life events, and/or a particularly knotty design problem' (ibid: 23). Davies and Talbot seem to suggest that designers use creativity as a coping

mechanism when faced with conflicting, uncertain and difficult situations. This view does appear to be supported by the descriptions of designing by Murray in Cross and Clayburn Cross (1996).

The creative process, as proposed by Wallas, has elements that are similar to the process of reflection-in-action, as proposed by Schön, although at points they do importantly differ. Wallas' stage 'preparation' seems to fit the description of Schön's 'surprise' where know-in-action fails to bring expected results, or when knowing-in-action fails to allow the passage of action to continue, hence the recognition of a problem or the experience of inner conflict. Schön, in his theory of design as reflective practice, does not describe the personal conflict and tension of Wallas' 'incubation' stage nor the withdrawal from the problem situation. However, the incubation stage then describes what is in the terminology of Schön a framing action, which permits new approaches to unfold, although Schön makes it clear that this is a purposeful and creative action preceded by selectively naming elements of the situation to focus upon. Confusingly, the 'incubation' stage precedes the 'illumination' stage, although re-perceiving the problem/situation is in Schön's theory a creative event and as such would have been accompanied by an 'illumination' experience. Wallas' stage 'verification' appears to fit with Schön's descriptions of a reflective practitioner's externalisation, testing and modelling of their ideas.

The themes, results and ideas presented by Davies and Talbot are developed through an analytical process where the researcher imposes their personal coherence and interpretation on the data. The possibility of bias is recognised by the authors. The paper does quote material from the interviews, however this is limited, and a large proportion of the work relates the research themes to a variety of literature. It can be argued that this process helps validate and ground the ideas proposed by the researchers, it does not, however, help portray the accuracy of the researchers' interpretations of the interview content. Davies and Talbot state that *imago* is about certainty, that it is the moment when a person realises that an idea is exactly right, perfect. Were the researchers proposing *imago* as a state where a deeper connection to fundamental patterns has been attained or were they proposing *imago* as a state where a person is struck so strongly by the experience that they believe utterly that they know that they have found 'the' idea? Did the researchers find examples of

designers who had experienced imago but when their idea was communicated their clients or other stakeholders did not share their enthusiasm for the idea; how did the designers rationalise this experience? It is not clear from the paper how frequent these experiences are, how many of their interviewees experienced imago and how frequently; without this information it is hard to assess the general relevance of this idea to design practitioners. When considering the imago experience within the broader context of reflective design practice, what influence would such certainty have upon a designer's ability to be critical, reflect and evaluate? When a designer is convinced that an idea is perfect, would they question it, be critical its appropriateness or of its consequences; perhaps the authors are suggesting that revealed in imago are all of these elements.

Rather than provide convincing descriptions of the experience of 'the idea' the work of Davies and Talbot does usefully help inform our understanding of design as it is experienced and provides valuable questions and foundations for further investigation.

2.6.6 – Research questions based upon studies of expert designers

A developed set of research questions can now be posed, based upon literature about research conducted through studying expert designers, to help guide the construction of an empirical study.

Cross (2006) highlights that, for expert designers, discomfort and stress are aspects of the designer's experience:

'The uncertainty of design is both the frustration and the joy that designers get from their activity; they have learnt to live with the fact that design is ambiguous' [...] 'we have to acknowledge that design is risky – it is not comfortable, and it is not easy' (ibid: 54).

In Lawson (1994), Cross and Clayburn Cross (1996) and Cross (2006) we find the experience of designing described with the terms: terribly fraught, painful, frustrating, desperate, hyper, panicky, and risky. It is indicated that these difficult and uncomfortable experiences seem to also be the joy of designing (Lawson, 1994; Cross, 2006). Through an empirical study is it possible to further our understanding of the experience of designing by directly discussing a designer's turmoil in an

attempt to gain contextual and situational descriptions for these experiences?
Research questions that could usefully be investigated through an empirical study are:

- Expert designers should recognise and describe elements of their designing experience as fraught, painful, frustrating etcetera, what are the situations where these experiences arise?
- Can we find evidence that expert designers learn to cope with the uncertainty and stress of designing; do they describe these experiences as essential and positive or as essential but negative?
- To what extent do expert designers become content with their own discomfort?

A number of themes about the nature of highly developed design ability are presented by Cross (2006): design is rhetorical, explorative, emergent, opportunistic, abductive, reflective, ambiguous and risky. The following research question could be investigated through an empirical study:

- When discussing with expert designers the experience of designing when they themselves are operating well, do they provide further examples of the descriptive concepts forwarded by Cross (2006)? When expert designers are asked to describe or define a good designer do they use Cross' descriptive concepts?

Lawson (1994) highlighted the motivational role of ideals and 'the big idea', which help designers engage with the hard work, trauma and dissatisfaction that occur as part of their professional activities. Based on these points, the following question is considered formative:

- Can further evidence be found, by discussing motivations and difficulties with expert designs, that supports or refutes the idea that ideals and 'big ideas' are used as supportive and motivational tools in professionally difficult and trying times?

Murray in Cross and Clayburn Cross (1996) describes his operating situation as one of intense pressure and challenge; is this intense environment of pressure and the designer's resulting stress a necessary component of the design experience that can be

found in the working practices of other expert designers? The following research questions are forwarded:

- Do expert designers explicitly highlight the importance of an intense pressurised working environment?
- Can evidence be found identifying tactics designers use to stimulate pressure, uncertainty and mental discomfort within their working practices?

Davies and Talbot (1987) proposed the idea and described ‘imago’ experience, an illuminating state of being or consciousness whereby a designer realises an idea to be ‘the’ idea. The designer’s experience of such a moment transformed frustration, insecurity and uncertainty into ecstatic joy and the addictive nature of such creative experiences was alluded to. The work by Davies and Talbot raises the following research questions:

- Do designers, as suggested by Davies and Talbot, use creativity as a coping mechanism when faced with situations of extreme uncertainty and ambiguity?
- Do other expert designers describe knowing that an idea is exactly right?
- If designers are motivated to seek out creative ‘illumination’ experiences how does this affect their experience of other phases of the process and how does it affect their ability to explore prior to and after the experience?

2.7 – Designers and uncertainties

2.7.1 – Section purpose

The purpose of this section is to review literature that comments on a designer’s relationship with uncertainty. This body of knowledge is seen as significant as the operating situation for design activity has been described as uncertain, ill structured and ill defined (Schön, 1983 & 1987) and the experience of designing has been described with the terms: terribly fraught, painful, frustrating, desperate, hyper, panicky, frustration, risky (Lawson, 1994; Cross and Clayburn Cross, 1996; and Cross, 2006). This review will focus on the strategies that have been proposed by researchers to explain the different ways that design practitioners respond to uncertainty. The review highlights areas of useful research, which are used to propose research questions.

2.7.2 – Responding to uncertainties

‘Unlike scientists who describe how the world is, designers suggest how it might be. Designers are therefore all ‘futurolgists’ to some extent’ (Lawson, 2006: 112). When your job involves creating the future (even if it is only very small aspects of it) uncertainty is never far away. The designer has worries about the future: will the client like the design; will it be manufactureable; will the design intent be executed on time, in profit; will it pass the respective legislative standards; will it be popular with users? In addition to these, perhaps prosaic, concerns, is the fact that the political, economic, technological and societal context is, in our present times, constantly changing at a rapid rate. This means that designers not only have inherent uncertainties about design outcomes and processes but also that they are unsure about, and only partially able to grasp, the complexities of the world they design for.

Lawson (2006) described three different approaches to dealing with these uncertainties in the design process, these he called: procrastination, non-committal design and throw-away design (ibid: 114).

Procrastination is based on the premise that certainty about the future will develop as we get closer to it, by waiting; if we cannot be sure about our decisions and actions, perhaps waiting is the best option to follow. Lawson states:

The real difficulty with this response to uncertainty is that once a problem has been identified it is no longer possible to avoid the consequences of making a decision. Delaying the decision itself adds to the uncertainty and may thus accelerate the problem (ibid: 115).

Procrastination appears to have a paired response, avoidance. In a design situation, a response to uncertainty can be to avoid making propositions by undertaking (usually more) information gathering. As MacCormac (1976) observed, ‘what you need to know about the problem only becomes apparent as you’re trying to solve it’ (MacCormac quoted by Cross, 2006: 52). The flaw in this strategy is also highlighted by the paradigm of design as reflective practice: understanding the problem situation and the appropriateness of a solution develops over time as a practitioner actively creates order, explores that order through action and reflects upon the naming and framing actions which shaped the order. Gathering information, of course, can be extremely helpful, but information, perhaps, should be used as points of

argumentation in concept development. Additionally the process of reflective inquiry indicates what sorts of information are necessary to support design development: the activity of generating solution propositions must be entered into to guide the information search. It would appear that following the strategy of avoidance rests upon an ill-conceived appreciation of the role of information gathering in the designing process and being unwilling to commit to the discomfort and uncertainty of explorative design activity.

‘The second design response to uncertainty is to be as non-committal as possible while still proceeding. Thus architects have tended to design bland, anonymous and neutral buildings which are non-specific either in terms of their function or locations’ (Lawson, 2006: 115). Lawson does not explicitly state what it is that designers following this strategy do not commit to, but it can perhaps be assumed that they do not commit to a particular standpoint or set of standpoints that would then infer responsibility and consequences. The logic of this strategy goes: because the future is uncertain and the requirements of the future may be different to today, making a commitment on specific functional elements or design principles may not be appropriate in the future; therefore, in safeguarding against future change, design outputs should be undertaken in a way which does not alienate the needs of tomorrow through satisfying the needs of today. The ambition of this strategy may be to create products that are non-offensive, achieving multi-goals to an acceptable level. The third response, throwaway design, is to design for the present only: designers create objects, which intended to be discarded, replaced and discarded again; obsolescence is built in. As a designer if you follow this strategy you do not have to engage with considerations or concerns about future uncertainties, this strategy makes those concerns, in a practice situation, non-consequential. Lawson does not provide evidence to support these different responses to uncertainty or state how he developed these observations.

Reflecting on his observations of student designers Dorst (2006) described a further response to the experience of uncertainty: attachment on early solution ideas and concept propositions. Cross (2006) suggests, that this characteristic is not exclusive to students or inexperienced designers:

Although designers change goals and constraints as they design, they appear to hang on to their principal solution concept for as long as possible, even when detailed development of the scheme throws up unexpected difficulties and shortcomings in the solution concept (Cross, 2006: 105).

Ullman, Dietterich, and Stauffer (1988) in a protocol study of mechanical engineers and Ball, Even, and Dennis (1994) in their study of senior electronic engineering students observed this phenomenon. Ullman et al., found that it was typical for the subjects to only pursue a single design proposal even though 'there were many cases where major problems had been identified in a proposal and yet the designer preferred to apply patches rather than to reject the proposal outright and develop a better one' (Ullman et al., 1988). In explanation Ullman offer the following:

One possible explanation is that all design activity takes place under limited resources of time, money, and personal pride and energy. Once significant resource investment has been made in a proposal (even a moderately unsatisfactory one), it is more cost-effective to patch the proposal than to start over (op. cit.).

Ball regarded this fixating behaviour as symptomatic of a reliance on a satisfying design strategy; the subjects appear to fixate on the first idea that appears to satisfy the design brief. Ball stated that:

When the designers were seen to generate a solution which soon proved less than satisfactory, they actually seemed loathed to discard the solution and spend time and effort in the search for a better alternative. Indeed the subjects appeared to adhere religiously to their unsatisfactory solutions and tended to develop them laboriously by the production of various slightly improved versions until something workable was obtained (Ball et al., 1994)

Akin (2001), in discussing the variants in cognition between disciplines, suggested that 'architects continue to search for alternative solutions even when they have already developed satisfactory ones' (Akin, 2001: 121). Akin proposes the possibility that this, in addition to their other suggested differences, may be influenced, if not caused, by the emphasis and value architectural education places on creativity and unique ideas. Extending this line of thought, perhaps we see attachment to early concepts in the studies of Ullman and Ball because of the difference in education between mechanical and electronic engineers and architects (and presumably other creative design disciplines).

Other concepts similar to ‘attachment to early concepts’ are fixation (Jansson and Smith, 1991; Purcell and Gero, 1991; Purcell, Williams, Gero and Colbron, 1993; Purcell and Gero, 1996) and ‘attachment to naive conceptions of design’ (Newsletter and McCracken, 2001). Jansson and Smith (1991), who studied senior student and experienced professional mechanical engineers, used the concept of fixation to describe the effect of exposure to solution examples. They compared the solution response of groups of participants who were given a simple written design brief, with those that were given a design brief with the addition of an illustration of an existing solution to the set problem. They found that the latter group became fixated by the example design, producing solutions that contained more features from the example design than the solutions produced by the other group. Purcell and Gero (1991), studied senior students of mechanical engineering and industrial design, attempting to verify and extend Jansson and Smith’s findings on fixation. Purcell and Gero concluded that industrial design students appear fixated on difference; hence, they did not become fixated by being shown solution illustrations. In contrast, the mechanical engineering students, became fixated when shown typical solutions to the problem, but were more explorative when shown examples, which were atypical. Fixation appears to be in conflict with the designing strategy, forward by Cross (1999 & 2006), which places emphasis on returning to first principles for solution generation. Perhaps this difference is explained by the subjects in Jansson and Smith’s and Purcell and Gero’s studies and the subjects studied by Cross being at different levels of expertise.

2.7.3 - Content when operating in situations of volatility

If the operating situation of designers inherently involves volatility and ambiguity, and if designing is a reflective conversation, then the way a designer responds to ambiguities and uncertainty appears to be significant. In an organisational study of the culture of designers, Michlewski (2006), described designers as ‘embracing discontinuity and openendedness’ where ‘designers appear content operating in a situation of considerable volatility and ambiguity’ (Michlewski, 2006: 216). Is this an accurate description; is a designer content when operating in situations of volatility and ambiguity? Dorst (1997) stated that one of the challenges within design education is that, ‘the student has to get used to being thrown into the design situation,

and learn to be comfortable with the inherent stress and uncertainty of it' (Dorst, 1997: 23). Can we find evidence that experienced design practitioners have learnt to be comfortable with the stress and uncertainty of being thrown into the design situation?

Sternberg (1990 & 1999) considers three different approaches to dealing with ambiguity and uncertainty: the intelligent, the creative and the wise. In the view of Sternberg, the creative person learns to tolerate ambiguity, although they are uncomfortable with it. Such a person realises that in creative endeavours there will be periods of time when things do not quite make sense or do not hang together. The creative person learns that premature closure results in a solution that is less than optimally creative. Sternberg claims that, the wise person is comfortable with ambiguity and, indeed, sees it as inherent in virtually all interactions people have with the world. The wise person views themselves and others as engaged in an unending dialectic with each other and the world, with the result that truly non-ambiguous situations never exist. Ambiguity is something to be understood, appreciated, and treated as fundamental to the nature of things. Hence, the wise person can be serene in the face of challenges that would distress the less wise. According to Sternberg, the conventional intelligent person is someone who sees ambiguity as something to be resolved, preferably sooner rather than later. Ambiguity interferes with optimal problem solving; hence, ambiguities need to be resolved in order to ensure that the solution that is reached, for a given problem, is indeed an optimal one. Of course, a more broadly intelligent person may understand and appreciate ambiguity (the person who is intelligent as well as wise) or tolerate it (the person who is creative as well as intelligent).

What are the consequences of these three approaches in the design process? It would appear that designers would benefit from the ability to apply and understand the appropriateness, within the design process, of the intelligent, the creative and the wise. However, here is a stumbling block: what is meant by wise, how does it manifest, can it be taught or learnt? It is one thing to claim that the wise person is comfortable with ambiguity, but, how is this so, how does one remain serene in the face of difficult challenges and what benefit would this be to an industrial designer?

2.7.4 – Research questions based upon literature about dealing with uncertainty

The basic research question can now be specified further and made into developed research questions to guide the exploration of the experience of designing in the empirical study. Lawson (2006) put forward three different responses to dealing with uncertainties in the design process (procrastination, non-committal design, and throwaway design, avoidance was also forwarded as a further response). The empirical study could be guided by the following questions:

- Do expert designers recognise any difficulties in designing in the context and uncertainty of a rapidly changing social, cultural, political and technological landscape?
- When discussing uncertainty, do expert designers openly discuss the temptation to respond with procrastination, non-committal design, throwaway design or avoidance? Are any further responses to uncertainty highlighted when expert designers reflect upon their design experiences?

Design researchers have forwarded the concepts attachment and fixation. Is there a relationship between attachment to concept solutions and avoidance of uncertainty? The following research questions could be pursued:

- Do expert designers recognise the concept of solution attachment; how is this form of attachment described by them?
- Is there more concept attachment when designers operate in situations defined by greater pressure and higher degrees of uncertainty?
- Is there evidence of expert designers actively avoiding attachment to early solution concepts?
- Is there evidence of expert designers repeatedly engaging with ambiguity and uncertainty to generate more solution concepts?

Michlewski (2006) stated that ‘designers appear content operating in situations of considerable volatility and ambiguity’ and Dorst (1997) claimed that student designers must ‘learn to be comfortable with the inherent stress and uncertainty’ of being thrown into the design situation. This suggests questions that have also been suggested in Section 2.6.3:

- Can we find evidence that expert designers learn to cope with the uncertainty and stress of designing; do they describe these experiences as essential and positive or as essential but negative?
- To what extent do expert designers become content with their own discomfort?

Based upon Sternberg's concept of wise, intelligent and creative responses to uncertainty, the following research questions are considered useful:

- Is contentment with uncertainty attained through its management; do expert designers describe strategies and tactics to manage uncertainty following descriptions of Sternberg's 'intelligent' approach to uncertainty and the methods described by the paradigm of rational problem solving?
- In discussions with expert designers do their descriptions of uncertainty and their relationship with it when designing match Sternberg's creative, intelligent or wise approach?

2.8 - Chapter summary

The purpose of the literature review, presented in this chapter, was to move from the study's basic research question to sets of developed research questions useful for constructing an empirical study.

The first objective of the literature review was to establish the project's central argument and illustrate that there has been, to date, a lack of research conducted into the design experience. The second objective of the literature review was to provide an answer to the basic research question part a). The third objective, of the literature review, was to pose sets of discrete research questions, which highlight current knowledge gaps and indicate how our understanding of the phenomenology of designing might be improved. The content of this chapter satisfies these objectives.

Section 2.2, 'studying design activity', reviewed some of the early work of design methodologists and considered the role of the designer and the experience of designing within the paradigm of technical rationality. It was highlighted that within the paradigm of technical rationality research into design phenomenology is unnecessary and illogical and the influence of this paradigm on design research, in

part, explains why there is a lack of understanding and rigorously constructed research into the experience of designing.

Section 2.3, 'why study the experiences of designers', presented a rationale for why this study focuses upon increasing our understanding of the phenomenology of designers. This section highlighted the central role that designers play, when design is considered from the perspective of the paradigm of reflective practice, and how a full understanding of design activities must include an understanding of the experience of designing.

Section 2.4, 'design as reflective practice', examined the action-orientated paradigm and theory of Schön (1983 & 1987), highlighting how our appreciation of reflective practice could be enhanced by examining Schön's thinking through a greater understanding of design as it is experienced. Through this review a set of research questions were developed and presented in Section 2.4.7.

Section 2.5, 'design expertise', focused on some of the key contributions to the growing body of literature about design expertise. It was argued that there is conflict between the stages of skill acquisition and designing as presented by Schön. The theories, identified within this section, were judged as removed from the study's core focus and were, therefore, not considered appropriate to be used as theoretical foundations for this study.

Section 2.6, 'what designers say about designing', reviewed some of the seminal studies, which have involved interviews with expert designers. The review examined the conclusions researchers have generated and through this review sets of research questions were developed and presented in Section 2.6.5.

Section 2.7, 'designers and uncertainty', considered how researchers have differently described designers' relationship with uncertainty. Through this review sets of research questions were developed and presented in Section 2.7.4.

Chapter three, research design and methodology, will describe the research design for this project's empirical study. It will illustrate how the research questions,

forwarded in this chapter, relate to the study's conjectures and how those conjectures will be tested by data gathering and analysis.

CHAPTER THREE - Research Design and Methodology

The rationale and plan for the research's empirical study

3.1 - Chapter purpose

The research study's broad aim is: to increase our understanding of design as it is experienced; and the study's basic research questions are: what is the current state of knowledge about the phenomenology of designing; and how can this be improved? Chapter 2 responded to the first part of the study's basic research question, developing sets of research questions, through a critical literature review. This chapter responds to the second part of the basic research question; developing the study's research questions into conjectures and presenting a research design for a study whereby those conjectures will be tested through an investigation of expert designers' experiences.

Methodology refers to more than a simple set of methods; rather it refers to the rationale and the philosophical assumptions that underlie a particular study, it consists of an analysis of the principles of methods, rules, and postulates employed by a discipline or within a particular study. Research methods, according to Bernard (2000) can be discussed at three different levels: epistemology, strategy and execution. The first level, epistemology, relates to the study of the nature of knowledge, particularly its foundations, scope and validity. One of the founding considerations of any epistemological standpoint is an associated ontological stance and questions raised regarding either field are highly inter-related. The second level refers to strategic choices; which methods or structure of methods would be best suited to the research topic, ensure rigour, validity and consistency and how these methods and organising structures might relate to anticipated outcomes. The third level is used to describe the execution of particular methods and refers to the specific techniques being employed. Decisions at all three levels will influence the quality and significance of the research outcome.

This chapter outlines the methodological framework applied in this study. The chapter is divided into five main sections. Section 3.2 reviews different theories of knowledge and highlights the philosophical assumptions upon which they rest. Section 3.3 considers qualitative research methods and their appropriateness to the study's research area. Section 3.4 presents the study's conjectures and an overview of the research design. Section 3.5 describes how data gathering will be executed and Section 3.6 describes the study's analytical processes.

3.2 - Philosophical assumptions

3.2.1 - Section purpose

The purpose of this section is to examine the ontological and epistemological roots of different research paradigms, developing clarity about the relevance of this study's epistemological stance. This section concludes that the social science research tradition and qualitative data are more appropriate to the area of research than the natural science positivist research tradition and quantitative data and that the epistemology of critical rationalism will be used to guide the derivation of knowledge.

3.2.2 - Theories of knowledge

Traditionally there have been two different theories of knowledge: classical empiricism and classical rationalism. Classical empiricism, as reviewed by Popper (2002) and Mautner (2005) and supported by Bacon (1620), Locke (1689), Berkeley (1710), Hume (1748) and Mill (1961), claimed that the ultimate source of all knowledge was observation. In contrast, classical rationalism, as reviewed by Popper (2002) and Mautner (2005) and supported by Descartes (1637), Spinoza (1677), and Leibniz (1714), claimed that the ultimate source of all knowledge was the intellectual intuition of clear and distinct ideas.

At the birth of modern science Bacon and Descartes, who believed that the truth is manifest, optimistically advocated empiricism and rationalism. It was believed that each person carried the source of knowledge in themselves, either in their sense perception, which they may use for careful observation of nature, or in their power of intellectual intuition which they may use to distinguish truth from falsehood by refusing to accept any idea which is not clearly and distinctly perceived by the intellect.

Epistemological optimism asserts that because each person is their own source of knowledge and truth, each person can be free and can thus be linked to ideas of liberalism and epistemological rationalism. Epistemological rationalism advocates the right of reason and empirical science to criticise and reject any tradition or authority as based on sheer unreason or prejudice.

Epistemological pessimism infers human depravity and thus leads to the demand for powerful establishments and the entrenchment of a powerful authority, which would save man from their folly and wickedness. Epistemological traditionalism, which can be linked to epistemological pessimism, claims that in the absence of an objective and discernable truth we are faced with the choice between accepting the authority of tradition or chaos.

Bacon and Descartes set up observation and reason as new authorities, and they set them up within each individual man. In doing so they created a dualistic ontology, splitting man into two parts, a higher part, which has authority with respect to truth and a lower part. If truth is manifest, it is the lower part, which constitutes our ordinary selves, which is alone responsible for error.

Archer (2004) describes the 'Baconian' paradigm, the traditional view of science, as set out by Bacon in 1620, thus:

The scientist begins by making meticulous observations, or by carrying out systematic experiments. He (or less frequently, in those days, she) records these findings carefully and publishes them. In the course of time, the workers in the field accumulate a shared body of data. As the body of data grows, corrections are made and common features noticed. Eventually, individuals start to formulate general hypotheses which fit the facts as so far known, and which seem to explain them. The same or other individuals then seek to confirm these hypotheses by searching for supporting evidence to the accumulated knowledge base. When the hypotheses become widely acknowledged by workers in the field as having been confirmed, they take on the status of scientific laws. The laws are held to be generally true. The whole process is characterised as being empirical (that is, based upon evidence obtained in the real world), objective (that is, free from the influence of value judgements on the part of the observer), and inductive (that is, moving from the observation of specific laws). Intellectual processes of any sort that fail the test of empiricism, objectivity and inductive reasoning are dismissed as unscientific and unreliable (Archer, 2004: 16-17).

Using Newton's articulation of general laws of mechanics and Einstein's theory of relativity as examples, Archer points out that achieving the ideals of empiricism, objectivity and induction is elusive. Often, according to Archer, a scientific approach means employing an 'axiomatised deductive system, that is, observation and reasoning based on the tacit acceptance of a limited number of initial propositions that, whilst unproven, are deemed true' (ibid: 17). Kuhn (1962) describes a scientific

revolution, initiated by the persuasive logic of Popper, which reverses attempts at theory verification to efforts to falsify. Popper (2002) argues against the principle of verification, with the following conclusions:

- 1) It is easy to obtain confirmations, or verifications, for nearly any theory – if we only look for confirmations.
- 2) Confirmations should count only if they are the result of risky predictions, that is to say, if, unenlightened by the theory in question, we should expect an event which was incompatible with the theory – an event which would have refuted the theory.
- 3) Every ‘good’ scientific theory is a prohibition: it forbids certain things to happen. The more a theory forbids, the better it is.
- 4) A theory which is not refutable by any conceivable event is non-scientific. Irrefutability is not a virtue of theory (as people often think) but a vice.
- 5) Every genuine test of a theory is an attempt to falsify it, or to refute it. Testability is falsifiability; but there are degrees of testability: some theories are more testable, more exposed to refutation, than others; they take, as it were, greater risks.
- 6) Confirming evidence should not count except when it is the result of a genuine test of the theory; and this means that it can be presented as a serious but unsuccessful attempt to falsify the theory. (I now speak in such cases of ‘corroborating evidence’.)
- 7) Some genuinely testable theories, when found to be false, are still upheld by their admirers – for example by introducing ad hoc some auxiliary assumption, or by re-interpreting the theory ad hoc in such a way that it escapes refutation. Such a procedure is always possible, but it rescues the theory from refutation only at the price of destroying, or at least lowering, its scientific status (ibid: 47-48).

It is clear from these statements that, scientific enquiry, according to Popper, means formulating a scientific proposition in as unambiguous a way as possible, and then conducting systematic attempts to refute it. This process is known as conjecture and refutation. Popper (2002) provides an epistemology, ‘critical rationalism’ that refutes both classical empiricism and classical rationality. Popper (2002: 36-38) outlines this epistemology in the form of ten theses:

Table 3.1: Popper's theses on 'Critical Rationalism' (based on Popper, 2002: 36-38) (original in colour)

Popper (2002)	Epistemology: Critical Rationalism
1.	There are no ultimate sources of knowledge, every source and suggestion is welcome and all are open to critical examination
2.	The proper epistemological question is not one about sources; rather, we ask whether the assertion made is true, that is whether it agrees with the facts
3.	Examination is central in order to discern if our theories are consistent with our observations
4.	Quantitatively and qualitatively the most important source of our knowledge, apart from inborn knowledge, is tradition. Most of the things we know we have learnt by example, by being told, by reading books, by learning how to criticise, how to give, take and accept criticism; how to respect truth
5.	Most of our sources of knowledge are traditional and all are open to critical examination, however without tradition knowledge would be impossible
6.	Knowledge cannot start from nothing. The advance of knowledge consists mainly in the modification of earlier knowledge.
7.	Pessimistic and optimistic epistemologies are equally mistaken. There is no criterion of truth at our disposal, and this fact supports pessimism. But we do possess criteria, which may allow us to recognise error and falsity. Clarity and distinctness are not criteria of truth, but such things as obscurity or confusion may indicate error. Coherence cannot establish truth, but incoherence and inconsistency do establish falsehood
8.	Neither observation nor reason is an authority. Intuition and imagination are most important as the main source of our theories; but they can mislead us and most of our theories turn out to be false. The most important function of observation, reason, imagination and intuition are to help us critically examine those bold conjectures, which are the means by which we probe the unknown
9.	Although clarity is valuable in itself, exactness and precision are not: there is no point in being more precise than our problem demands
10.	Every solution to a problem raises new unsolved problems, the more so the deeper the original problem and the bolder its solution. The more we learn about the world, and the deeper our learning, the more conscious, specific, and articulate will be our knowledge of what we do not know, our knowledge of our ignorance. For this is the main source of our ignorance the fact that our knowledge can only be finite, while our ignorance must necessarily be infinite

The distinction can be made between three fundamentally different approaches to knowledge. Firstly, 'classical empiricism', which sees knowledge as manifest; data is collected using observation as a base, hypotheses and theories are constructed which fit the collected data, those theories are tested and verified by a process of confirmation. Secondly, 'classical rationalism', which sees knowledge as manifest; using reason and logic as a base, theory is constructed, deducting from theory to explain phenomena, theories are tested and verified by how well phenomenon are explained, or predicted, by the theory. Thirdly, 'critical rationalism', which sees knowledge as constructed; theories and hypotheses are generated and conjectured, examination is placed centrally in rigorous attempts at refutation, theories are tested by attempts to falsify. Critical rationalism is asymmetrical in its method: a negative test result may serve as a refutation; a positive result cannot serve as a conclusive proof.

According to Popper, testing a theory should not be undertaken by attempts to confirm. The verification of a proposition, theory or thesis by empirically generated evidence does not denote proof or universal truth. However, verification can, through evidence, indicate degrees of probability. Testing a theory should be an attempt at refutation. For these reasons, in this study, the epistemology of critical rationalism and the processes of conjecture and refutation are followed. In Chapter 2, sets of research questions were developed, based upon a literature review. Informed by those research questions Section 3.6.2 presents two conjectures that will structure and inform an empirical study. Through data analysis the conjectures will be tested.

Section 3.2.2 considers the differences between qualitative and quantitative research methods and data. This review will be used to consider the most appropriate data type for this study.

3.2.3 - Qualitative and quantitative methods

Historically there are two distinct ontological and epistemic approaches within research: scientific research and social research. Silverman (1993) distinguishes between these two schools of thought, using the terms ‘positivism’ and ‘interpretive social science’. Table 3.2 highlights this dichotomy:

Table 3.2: Two schools of thought (adapted from Silverman, 1993)

Approach	Concept of Social Reality	Methods
Positivism	Social structure and facts to be discovered	Quantitative hypothesis testing
Interpretive social science	Social construction and meaning to emerge	Qualitative hypothesis generation

Scientific approaches are often associated with positivism, which is a ‘term often used to describe knowledge typically associated with the natural sciences’ (Knight and Arksey, 1999: 10). Its research strategies can be characterised as systematic, rigorous, controlled, deductive, predictive, positivistic, empirical and based on logical experimentation (Grey and Malins, 1993). Its central position is that experience is the foundation of knowledge (Bernard, 2000). Explanation of a phenomenon is central to its aim, and holds that objective knowledge is out there to be discovered and can only be gained through direct experience of the data. It is largely based on quantitative data derived from the use of strict rules and procedures. Its purpose is to develop

universal causal laws, and it aims to explain phenomena based on those laws (Robson, 2002). Therefore, positivism is aligned to numerically driven classical empiricism.

Social science research is concerned with the 'sentient experience of being human and have in common an interest in human thought, life, culture and action' (Knight and Arksey, 1999: 10). Strauss and Corbin (1990) describe qualitative research as:

Any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification. It can refer to research about peoples' lives, stories, behaviour, but also about organisational functioning, social movements, or interactional relationships (ibid: 17).

A social scientist's role is to understand and explain why people have different experiences, understanding the constructions and meanings placed upon experience. Different types of qualitative research are grounded theory, ethnography, the phenomenological approach, life histories, and conversational analysis (Strauss and Corbin, 1990: 21). Although not listed by Strauss and Corbin, case study research, as described by Yin (1993), can also be a type of qualitative research. Social science research is largely based on qualitative data derived from observations within a naturally occurring context. In contrast to quantitative data, qualitative data are often descriptive, consisting of multiple realities, socially constructed and context dependent, where qualitative methods are inductive, meaning seeking and theory generating (Ponterotto and Grieger, 1999). However, possessing outwardly 'non-scientific' characteristics does not suggest that a 'scientific attitude' cannot be applied to qualitative research. Being 'scientific' in this sense is to carry out research systematically, sceptically and ethically (Robson, 2002). Taken this way, all researchers should strive to have a scientific attitude applied for the purposes of uncovering and generating new knowledge.

It appears that qualitative and quantitative methods can be applied with rigour under the epistemologies of classical empiricism, classical rationalism or critical rationalism. The phenomenon under investigation, in this study, is expert designers' experience of designing. As the social science research tradition is concerned with the sentient experience of being human it is better matched to this study's area of investigation than positivism. The next section reviews a number of relevant research methods from the social science tradition presenting case study as the strategic

method to structure and guide this study's empirical research in its design, execution and presentation.

3.3 – Qualitative research methods

3.3.1 – Section Purpose

The purpose of this section is to establish case study strategy, using semi-structured interviews as the appropriate bases for the subject matter of this study. This purpose is achieved by reviewing different social science research methods and some of the methods used by design researchers when researching designers.

3.3.2 – Social science research methods

What follows is a brief review of a number of social science research methods. In the current context a full and exhaustive review of each method is not possible. The purpose of this review is to highlight why case study method has been selected for this study. Ethnography, phenomenological research, grounded theory and case study are the methods covered in this review.

Ethnography

Ethnographies are based on observational work in particular settings. Ethnography involves extensive fieldwork and may be pursued in a variety of social settings that allow for direct observations of the activities of the group being studied, communications and interactions with people, and opportunities for informal and formal interviews that complement the observational work (Bogdan and Taylor, 1975; Jorgensen, 1989). 'A major advantage of observation as a technique is its directness. You do not ask people about their views, feelings or attitudes; you watch what they do and listen to what they say' (Robson, 2002: 310). A further advantage is that this kind of research is undertaken in context, in the real world, and therefore, lacks the artificiality of laboratory, controlled observation. A major issue concerning this research method is the extent to which an observer affects the situation. This type of research is very time consuming and requires access to the subjects and their environments for prolonged periods of time; for these reasons it was not practical to pursue this method for studying expert designers.

Phenomenological research

The study of human experience is sometimes divided into two fundamentally different approaches: the objective third-person approach, and the subjective first-person approach (Blackmore, 2003: 371). Between these two there is sometimes added another: the second-person, or inter-subjective approach (Thompson, 2001). Deciding whether this distinction marks the difference between a first and third person science or first and third person methods can be confusing, therefore, it is worthwhile drawing out the difference.

The notion of a first-person science can be refuted on three different points. Firstly science is a collective activity in which data is shared, ideas exchanged, and theories argued over. The results of scientific work are published where they are either demolished or built upon; this suggests that there can be no private first person science. Secondly, objectivity is valued in science because of the dangers of personal bias, the scientist is trained to set aside prior beliefs and maintain an open mind in face of the evidence, this suggests that subjectivity might be damaging to science. Thirdly, as soon as inner explorations are described or spoken about, those descriptions become data for third-person science. In this sense there can be no first-person data (Metzinger, 2003). First-person methods (Varela and Shear, 1999) however are not ruled out in a third-person science, if they involve systematic self-observation or self-exploration. The use of first-person methods includes a classic argument: the incorrigibility of the first-person view. Those that claim that special methods are required to study experience argue that we have privileged access to our own inner states; that is, only we can observe them and we cannot be wrong about them. However, the alternative viewpoint contends that we only have privileged access to how it seems to us.

The term 'phenomenology' is used in several different ways. It can refer to a person's inner world (their phenomenology) and it can refer to methods, and there are two meanings for that. In the broad sense phenomenology refers to any methods for the systematic investigation of phenomenal experience (Stevens, 2000) and usually refers to the methods of subjectivism contrasted with the positivist methods of objectivism. In a narrower sense it refers specifically to the tradition based upon Husserl's philosophy (Moustakas, 1994). Of interest to this study is not Husserl's

philosophy but the methods advocated for getting at and researching the experience itself. Husserl argued that there can be no meaningful distinction between the external world and the internal world of experience and emphasised the importance of lived experience over scientific abstractions. Husserl's aim was what he called eidetic reduction (or epoché), a method of finding the essential features, or invariants of peoples' experience. This method is not widely adopted in part due to the difficulty of letting go of one's preconceptions and going beyond conceptualisation to the 'things in themselves'. Hut (1999) notes, 'reading about the epoché typically leads a student to contemplate the concept of epoché, rather than really performing the epoché (a danger Husserl kept warning about)' (1999: 242).

Moustakas (1994) states that 'the empirical phenomenological approach involves a return to experience in order to obtain comprehensive descriptions that provide the basis for a reflective structural analysis that portrays the essences of the experience' (ibid: 13). Accordingly, the researcher determines the essence, the underlying structures of an experience by interpreting the descriptions provided by the research subject. This approach is used in many different contexts, such as exploring emotional states, or describing what it is like to undergo certain experiences, with the intention of discovering the essence of those experiences (Stevens, 2000). The typical method involves several stages of analysing interviews or written accounts of experiences, upon which a summary or narrative digest is produced, and significant themes are extracted to find the fundamental constituents of that kind of experience. Arguably, this use of phenomenology is not a first-person method but a third-person one. Although Husserl's intention was to explore lived experience by seeing through preconceptions, the actual contemporary method depends upon analysing what people say, which is not the experience but an account of the experience, and in this sense is no different to many other forms of psychology.

In an account of the methodology of transcendental phenomenology, Moustakas (1994) claims that the processes of 'epoché', 'transcendental-phenomenological reduction', and 'imaginative variation' facilitate the derivation of knowledge. In performing epoché, the research subject, sets 'aside predilections, prejudices, predispositions, and allows things, events, and people to enter anew into consciousness, and to look and see again, as if for the first time (Moustakas, 1994:

85). According to Moustakas, 'the epoché is a way of looking and being, an unfettered stance' (op. cit.). The descriptions Moustakas provides of epoché raises a number of questions about the use of epoché as a research process. Do advocates of epoché suggest that this is a state that a research subject can enter at will; what preparation and training is required of the subject; will the subject or/and the researcher know when epoché has been achieved; are there degrees to which a subject can achieve epoché, and how does this affect the research? The process of transcendental-phenomenological reduction involves iterative rounds of experiencing and reporting. In reporting the experience emphasis is placed on textural qualities. Moustakas summarises, stating that the steps in phenomenological reduction include:

Bracketing, in which the focus of the research is placed in brackets, everything else is set aside so that the entire research process is rooted solely on the topic and question; *horizontalizing*, every statement initially is treated as having equal value. Later, statements irrelevant to the topic and question as well as those that are repetitive or overlapping are deleted, leaving only the *Horizons* (the textural meanings and invariant constituents of the phenomenon); *Clustering the Horizons Into Themes*; and *Organising the Horizons and Themes Into a Coherent Textural Description* of the phenomenon (ibid: 97).

The final process, 'imaginative variation', seeks possible meanings for the studied phenomenon, by utilising the imagination. This process aims to explore the possible conditions that account for the experience.

Executing and engaging research subjects in the processes of transcendental phenomenology is a considerable undertaking and is considered to be a significant barrier to accessing research subjects appropriate for this study. Therefore, the research method of transcendental phenomenology will not be pursued in this study.

Grounded Theory

Grounded theory is concerned with 'the discovery of theory from data' (Glaser and Strauss, 1967: 1) and is a qualitative research method that uses a 'systematic set of procedures to develop an inductively derived grounded theory about a phenomenon' (Strauss and Corbin, 1990: 24). Grounded theory methods support researchers in an attempt to 'codify and publish their own method for generating theory' (Glaser and Strauss, 1967: 8). The intention of this approach is to provide guidelines that support the highly personal, iterative procedure of constructing situated meaning. The

researcher is encouraged to use their own 'theoretical sensitivity' (Glaser, 1978) and knowledge from their own area of expertise. A grounded theory, according to Strauss and Corbin (1990):

Is one that is inductively derived from the study of the phenomenon it represents. That is, it is discovered, developed, and provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon. Therefore, data collection, analysis, and theory stand in reciprocal relationship with each other. Rather, one begins with an area of study and what is relevant to that area is allowed to emerge (ibid: 23).

The generation of data embedded theory involves integrated cycles of data analysis and data collection. Theory is being used to describe a set of well-developed concepts related through statements of relationships, which together constitute an integrated framework that can be used to describe, explain or predict phenomena. The processes of data analysis and data collection serve to refine the categories with the data that is emerging. Links between categories are explored, modified and interpreted to seek out emerging concepts and theories. Using this method the researcher is constantly finding, analysing and theorising against the data collected to arrive at a conclusive theory.

The development of grounded theory has diverged into two separate camps. Strauss and Corbin (1990) focus on a more structured methodology; Glaser (1978) opts to focus on reducing preconceptions and encourage an open-ended discovery of theory, requiring a deep-felt process of creative-analytical sense making. Strauss and Corbin's variant of grounded theory calls for a very detailed and formulaic technique of eliciting meaning. This approach divides the coding process into three stages. These stages include: 'open coding', where data are fragmented and preliminary codes are assigned; 'axial coding' whereby data are resembled; and finally 'selective coding' by means of which the core category is selected and related to other categories (Strauss and Corbin, 1990). Central to the Strauss and Corbin method is the 'paradigm model': 'a systemised cause and effect schema, which the researcher uses to explain relationships between categories and subcategories' (Strauss and Corbin, 1990: 99). Glaser (1992) notes that this kind of inflexible and structured process goes against the life force of grounded theory, where a researcher, using their

theoretical sensitivity, interprets the reality encountered. When discussing forcing of data versus the original intention of theory emergence, Glaser writes:

If you torture the data enough it will give up! This is the underlying approach in the forcing preconceptions of full conceptual description. The data is not allowed to speak for itself, as in grounded theory, and to be heard from infrequently it has to scream. Forcing by preconception constantly derails it from relevance (Glaser, 1992: 123).

Grounded theory is clearly described as following a different epistemology to critical rationalism: theory is discovered and developed, not laid out at the outset; theory is verified by confirmations not refutations. Grounded theory is also based on empiricism as opposed to being based on rationality and as such can, perhaps, be recognised as a variation of classical empiricism. However, in classical empiricism the processes of data collection, analysis and theory generation are distinct, whereas in grounded theory these stages are less well distinguished and go on concurrently. Despite this criticism, Glaser and Strauss (1990) claim that, 'yes, grounded theory is a scientific method', and if carried out carefully the criteria of 'significance, theory-observation compatibility, generalizability, reproducibility, precision, rigor, and verification' (ibid: 27) can be achieved.

Grounded theory methods, because of their epistemological incompatibility with the process of conjecture and refutation, will not be used to structure this study's qualitative research.

Case study

According to Yin (1993 & 2003), 'a case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident' (Yin, 2003: 13). Case study research is a form of social science research, which can be qualitative or quantitative. Yin claims that when a researcher wishes to, 'define topics broadly not narrowly, cover contextual conditions and not just the phenomenon of study, and rely on multiple and not just singular sources of evidence' (Yin, 1993: xi), then the case study method is appropriate. Yin outlines six different types of case studies. He states that a case study can be 'explorative', 'descriptive' or 'explanatory' and it can be either of these using single-case or multiple-case studies. When undertaking

multiple-case studies, ‘cases should be selected so that they are replicating each other – either exact (direct) replications or predictably different (systematic) replications’ (ibid: 5). Yin further explains that:

An exploratory case study (whether based on single or multiple cases) is aimed at defining the questions and hypotheses of a subsequent (not necessarily case) study or at determining the feasibility of the desired research procedures. A descriptive case study presents a complete description of a phenomenon within its context. An explanatory case study presents data bearing on cause-effect relationships – explaining which courses produce which effects (op. cit.).

In case study research there are a number of technical challenges that face a researcher and a number of methodological issues that must be accounted for. The richness of case study research is the inclusion of context and the inclusion of context is also the source of challenge. The richness of context means that studies will undoubtedly have more variables than data points; how then is reliability, generalisability and repeatability addressed? The complexity of including context into the subject of study means that evidence is often collected from multiple sources; what data collection and analysis techniques are recommended when operating the case study method? Case study research addresses these challenges through: the use and prior development of theoretical propositions; specifying the limits of a case by defining the ‘unit of analysis’; and using the principle of triangulation, which can take the form of identifying an issue from multiple sources of information, or by examining the same unit of analysis from a different case and repeating the finding.

Case studies permit the researcher to draw from multiple sources, for periods of undetermined time. It is therefore imperative to limit the boundaries of the study; this is done through clearly defining the unit of analysis at the study’s outset. The unit of analysis, in case study research, defines what the ‘case’ is that is being studied. Additionally, the findings of the study will pertain to specific theoretical propositions about the unit of analysis, these propositions are the means of generalising the findings of the case study to other cases focusing on the same unit of analysis. Sampling, the selection of specific cases, can follow replication logic, not sampling logic. Cases are chosen which reflect strong, positive examples of the phenomenon of interest, the investigation attempts to determine whether similar casual events, within each case, produce these positive outcomes. Case study research follows the format

of logical positivism, where hypotheses are developed, empirical data collected and conclusions developed based on the analysis of the data (ibid: 47). The researcher strongly asserts that case study strategy can be followed while adhering to the epistemic stance of critical rationalism, without disrupting the integrity of the method and is a suitable research strategy and set of methods for studying expert designers' experience of designing.

Yin (2003) describes six sources of evidence frequently used in case studies: documentation, archival records, interviews, direct observations, participant observation and physical artifacts (ibid: 86). This study is concerned with expert designers' experience of designing and 'open ended' interviewing (or semi-structured interviews using open questions) has been selected as the technique for data gathering whereby this phenomenon will be explored as a descriptive multiple-case study. According to Yin (op. cit.), the strengths of interviews are that they are targeted and can focus directly on the case study topic and that they are insightful, providing perceived causal inferences. Yin (op. cit.) suggests that the potential weaknesses of using interviews are: bias due to poorly constructed questions; response bias; inaccuracies due to poor recall; and reflexivity, the interviewee gives what the interviewer wants to hear.

3.3.3 - Design research methods

Cross (2001) makes a useful distinction between 'scientific design', 'design science' and a 'science of design'. Based upon the assumption that modern industrial design had become too complex for the intuitive methods of the craft traditions, new methods were developed whereby scientific knowledge could be applied to practical tasks. Scientific design, according to Cross, is design based on scientific knowledge, utilising a mix of both intuitive and non-intuitive design methods, and is a reflection of the modern reality of design practice, and therefore, not a controversial concept. Beyond scientific design, design science includes systematic knowledge of design process and methodology, as well as the scientific and technological underpinnings of designed artifacts. Cross concludes that 'design science refers to an explicitly organised, rational, and wholly systematic knowledge approach to design; not just the utilization of scientific knowledge of artifacts, but design in some sense as a scientific activity itself' (Cross, 2001: 53). This is a controversial concept. Gasparski and

Strzalecki (1990) claimed that ‘the science of design (should be) understood, just like the science of science, as a federation of subdisciplines having design as the subject of their cognitive interests’. In this sense the science of design is similar to the definition of design methodology, the study of the principles, practices and procedures of design (Cross, 1984). The science of design is not the same as design science and refers to the body of work undertaken to improve our understanding of design employing scientific (i.e., systematic and reliable) methods of inquiry. The purpose of this section is to consider the approaches of design researchers in their scientific study of design, paying particular attention to the studies, which take designers as their subject, and the methods they employ.

Cross (1999) states that, ‘our concern in design research has to be the development, articulation and communication of design knowledge’ (Cross, 1999: 5). The search for such knowledge according to Cross has three sources: people, processes and products. Based on these sources, Cross, proposes a taxonomy of the field of design research, divided into three main categories:

- Design epistemology – study of designerly ways of knowing;
- Design praxiology – study of the practices and processes of design;
- Design phenomenology – study of the form and configuration of artefacts (ibid: 6).

There is an obvious difference between Cross’ use of the term ‘design phenomenology’ and the use, in this study, of the term ‘the phenomenology of designing’. It could be argued, that ‘design phenomenology’ refers to the study of peoples’ perception and experience of product and product attributes; however, it is unclear if this is Cross’ intention. Reference to the theoretical studies of design morphology and the knowledge about materials, manufacture and finishes that products embody, perhaps suggests that ‘design phenomenology’, is intended as the study of the form and configuration of artifacts independent of subjective perception and experience. Of course products and product attributes could be studied from either, or both of these methodological standpoints. In this study, the experience of designing, the phenomenology of designing, would firmly reside under Cross’ study of designerly ways of knowing, with the subject of study being people and their experience of designing.

Studying designers and researching design thinking has been undertaken with a range of different methods, these have included: interviews with designers (Lawson, 1994; Cross and Clayburn Cross, 1996) (reviewed in Chapter 2, Section 2.6); observations and case studies (Candy and Edmonds, 1996; Galle, 1996; and Valkenburg and Dorst, 1998); and protocol studies (Lloyd and Scott, 1994; Cross, et al., 1996; and Gero and McNeill, 1998).

The work of Lawson (1994) and Cross and Clayburn Cross (1996) both use interviews to generate data. Lawson interviews multiple subjects and Cross and Clayburn Cross focus on a single subject. The contexts within which the research studies are presented are also different, Cross and Clayburn Cross present a journal article whereas Lawson presents his work in a book. The advantage of this difference is that Lawson is able to present much more of the content of the interviews, which helps the reader of the work understand the themes around which his questions were structured, and Lawson is able to undertake and present cross-case analyses. While both of these studies utilise interviews to generate data neither study positions this tool within a methodological structure outlining the strategies and procedures the researchers followed.

The procedures of the case study method can be further understood by examining the structure of some design research case studies. What follows is a review of the procedures of the studies: Candy and Edmonds (1996); Galle (1996); and Valkenburg and Dorst (1998).

Candy and Edmonds (1996) report a case study of the design of the LotusSport bicycle, designed by Mike Burrows. The phenomenon of study is, creative design and the requirements for computer support. The intent of the research was to identify the opportunities and constraints for computer support of creative design, as such, this work, is a descriptive single-case study. The unit of analysis is the creative cognition, of Burrows, during his design processes, when working on the LotusSport project. Further the unit of analysis is defined by focusing on: idea generation, problem formation, strategies, methods and expertise. The authors, in a retrospective study, gathered data from dual sources: design outputs (sketches, products etc.), and the designer's verbal accounts. Discussion was initiated by unravelling predecessor

bicycle designs and the design outputs provided a record of the design process around which further discussion was centred. Structured interviews followed informal interviews, all of which were tape-recorded and transcribed. Follow-up interviews were conducted after the initial transcript data was checked and confirmed by the designer. The findings are presented under the topics of the unit of analysis (idea generation, problem formation, strategies, methods and expertise). The authors define each of these topics and provide accounts of their findings intersected by extracts from their interview transcripts. In a discussion of the findings, the authors verify their findings, by relating them to previous studies they have conducted and other research activity in the area of computer support for creative design. In this single-case study there is a clear account of: the investigation's design, data collection techniques and strategies, the unit and process of analysis, and a presentation of the findings.

Galle (1996) states that 'design can be understood as the creation and rationalisation of a chain of decisions that lead from a problem (the understanding of which may evolve in the process) to a solution' (ibid: 253). The phenomenon of study, in this work, is design rationalisation in real-world cases. Data were gathered using a method called 'replication protocol analysis' (RPA). The author contrasts this data collection method to 'design protocol analysis' (DPA). In DPA, externalising and documenting the designer's thoughts, during the design process, generates a design protocol. In RPA, the person whose thoughts are recorded is not the original designer, but a 'replicator': a person who is asked to 'replicate' the design process. According to the author, in RPA:

The replicator is given an initial statement of the design problem (e.g. the brief of an architectural competition) and one or more 'target' solutions (e.g. the winning entry), and then produces an argumentative account, in writing, of a chain of decisions that might have led from problem to solution(s). The resulting 'replication protocol' can subsequently be analysed in much the same way as a design protocol (ibid: 254).

In this study, the author, Galle, acted as the replicator. The unit of analysis was therefore, Galle's post-facto rationalisation, of a chain of logic leading from the problem statement to the winning entry solution in the Spangsbjerg architectural competition of 1985. Analysis of the replication protocol aimed to capture the logical

relationship between decisions and the reasons that justify them, as such this work is the presentation of an explanatory single-case study based upon a replication protocol analysis.

Valkenburg and Dorst (1998) described their study as explorative. The study is explorative as it is hypothesis generating: the authors 'attempt to describe team designing in a manner that provides a survey of the teams' activities' 'that can be a starting point for analyzing team behaviour' (ibid: 249). The phenomenon under study is the behaviour of, four person design teams, in the context of a weeklong design competition project. The unit of analysis, developed from Schön's (1983 & 1987) theory of design as reflective practice, are the design actions of 'naming', 'framing', 'moving' and 'reflecting', their occurrence and use. In this study, data were gathered by video taping the designers first two days at work, through which a protocol analysis was undertaken on the teams dialogue, and further the researchers observed the teams under study for the remainder of the week. It could be argued that this study is a descriptive multiple-case study, in that it tests 'reflective practice' as an observational method and that it is an explorative multiple-case study, in that it generates hypotheses about design team behaviour.

In the 1920's the analysis of think-aloud protocols emerged as a method of psychological research. Early studies were limited by researchers' abilities to make accurate renditions of the subject's verbalisations. In the field of human problem solving, notable, think-aloud protocol analyses were used by de Groot (1965) in studies of chess playing, and by Newell and Simon (1972) in their studies of cryptarithmic and logical problem solving.

Protocol analysis relies on the verbal accounts given by subjects of their own cognitive activities. The disadvantages of think-aloud protocols are: 1) the process of externalising thoughts may actually change the subjects behaviour and cognitive processes; 2) what subjects report may be incomplete or inaccurate accounts of what their cognitive activity actually is; 3) irrelevant accounts, may, quite unintentionally be given by a subject as they verbalise parallel but independent thoughts. Despite these concerns, think-aloud protocols have enabled access to useful and insightful data about the cognitive processes of individuals and teams within the design domains

of architecture (Eastman, 1970; Akin, 1978; Schön, 1988; Chan, 1990), engineering design (Ullman, Dietterich and Stauffer, 1988; Whitefield and Warren, 1989; Kuffner and Ullman, 1991; Lloyd and Scott, 1994; Gero and McNeill, 1998) and industrial (product) design (Christiaans and Dorst, 1992a & 1992b; Cross, Christiaans and Dorst, 1996; Valkenburg and Dorst, 1998).

3.4 - Research design

3.4.1 - Section purpose

A research design is a plan of action indicating the specific steps that are necessary to provide answers to the research question (Wrenn, 2002). The purpose of this section is to present the research design and rationale for this project, outlining the connections between the project's research questions, conjectures, interview questions and the proposed methods and processes for a qualitative study. The qualitative study will be described in terms of its design and overarching methodology, and its methods and techniques for data gathering and analysis.

The study's broad aim is: to increase our understanding of design as it is experienced and the basic research question is: what is the current state of knowledge about the phenomenology of designing; and how can this be improved? The first part of the research question was addressed in Chapter 2. This section aims to illustrate how to satisfy the second part of the basic research question by forwarding conjectures about the experience of designing and describing the structure of an empirical study that will test those conjectures.

The following sub-section forwards: two conjectures; considers which of the research questions, developed in Chapter 2, relate to the conjectures; and proposes a set of interview questions, which will be used to structure the empirical study's data gathering.

3.4.2 – Conjecture Presentation

What follows are two bold conjectures about the experience of designing. These conjectures are based upon the theoretical foundations of the literature review presented in Chapter 2 and will be used to structure the data analysis. Conjecture one

has been divided into five stages, which detail its basic premise. This will allow conjecture one to be analysed with greater clarity.

Conjecture One – Basic Premise

The tone of expert designers' experience unfolds through a spectrum of emotional tone phases over time with their designing activities.

Conjecture One – Stage One

Expert designers are optimistic about their ability to resolve design problems, see problems as opportunities and begin their task with positive excitement.

Conjecture One – Stage Two

As expert designers engage with a professional context that is uncertain, ill structured and ambiguous they personally experience uncertainty. As the uncertainty of the challenge is grasped, fear develops about their ability to resolve the design problem's issues and exploit its opportunities.

Conjecture One – Stage Three

Iterative attempts to develop solutions can lead to frustration as the expert designer assesses his/her propositions as inadequate for resolving the design challenge.

Conjecture One – Stage Four

Over time, if solution propositions continue to be assessed as inadequate, dread is experienced as the expert designer questions his/her ability to resolve the design challenge. Mental paralysis can occur after this stage where the expert designer is unable to further explore the design situation.

Conjecture One – Stage Five

A creative event, which can occur at any point in time and at any reflective practice stage, transforms the tone of an expert designer's experience. Creative events differ in their significance and affect and are the moments of realisation when an expert designer reframes his/her situation of practice. The experience of certainty and joy accompanies creative events, which are seen as uncertainty resolving, and returns the practitioner to a state of optimism and excitement.

Conjecture Two

The design process involves uncertainty resolution and generates emotional fluctuation and disquiet. Expert designers recognise the necessity, and are willing to continually face their feelings of dissatisfaction and psychological discomfort.

In a qualitative study the following open-ended questions will be used as themes to discuss and address the study's area of research. The data generated by the subjects' responses will be used to test the above conjectures. The following is the Interview Question Template:

- 1) What is design?
- 2) What is design for?
- 3) Why do you design, what are your motivations?
- 4) In your design practise what do you consider important?
- 5) How do you judge the quality of a design project?
- 6) How do you judge the quality of your input into a design project?
- 7) How would you define or describe a good designer?
- 8) How do you develop and improve your design practise?
- 9) What are the difficulties that designers encounter?
- 10) What are the situations that put you in greatest turmoil?
- 11) What role do your emotions play while you are designing?
- 12) How would you describe your general condition when you feel you are working well?
- 13) There are a number of different activities involved in a design process, could you describe what your mind is like when undertaking those activities?
- 14) Are there any key moments during your life or career where you feel that your perspective or understanding of design has changed the way that you either do design or think about what design is?

Presented below are Table 3.3 and Table 3.4. Table 3.3 presents this study's conjectures, research questions and interview questions and Table 3.4 illustrates the anticipated relationship between the interview questions, research questions and the study's conjectures. Due to limitations of resources, in this study, it is not possible to address all of the research questions raised in Chapter 2 this is reflected in Table 3.3.

Table 3.3: Conjectures, research questions and interview questions (original in colour)

Conjectures, research questions and interview questions		
Conjectures	Research Questions	Interview Questions
<p>Conjecture One - Premise The tone of expert designers' experience unfolds through a spectrum of emotional tone phases over time with their designing activities.</p> <p>Conjecture One - Stage One Expert designers are optimistic about their ability to resolve design problems, see problems as opportunities and begin their task with positive excitement.</p> <p>Conjecture One - Stage Two As expert designers engage with a professional context that is uncertain, ill structured and ambiguous they personally experience uncertainty. As the uncertainty of the challenge is grasped, fear develops about their ability to resolve the design problem's issues and exploit its opportunities.</p> <p>Conjecture One - Stage Three Iterative attempts to develop solutions can lead to frustration as the expert designer assesses his/her propositions as inadequate for resolving the design challenge.</p> <p>Conjecture One - Stage Four Over time, if solution propositions continue to be assessed as inadequate, dread is experienced as the expert designer questions his/her ability to resolve the design challenge. Mental paralysis can occur after this stage where the expert designer is unable to further explore the design situation.</p> <p>Conjecture One - Stage Five A creative event, which can occur at any point in time and at any reflective practice stage, transforms the tone of an expert designer's experience. Creative events differ in their significance and affect and are the moments of realisation when an expert designer reframes his/her situation of practice. The experience of certainty and joy accompanies creative events, which are seen as uncertainty resolving, and returns the practitioner to a state of optimism and excitement.</p> <p>Conjecture Two The design process involves uncertainty resolution and generates emotional fluctuation and disquiet. Expert designers recognise the necessity, and are willing to continually face their feelings of dissatisfaction and psychological discomfort.</p>	<ol style="list-style-type: none"> 1. What is it like, experientially, to be in a reflection-in-action moment? 2. What are the situations that place expert designers in greatest turmoil? 3. According to Schön, the recognition of uncertainty, by a practitioner, provides the opportunity to respond with reflection, transforming knowing-in-action to reflection-in-action. How do practitioners experience that transition; how do designers cope with uncertainty? 4. Do non-verbal reactions to reflective inquiry influence practitioners' reflection-in-action; can practitioners reflectively verbalise these experiences? 5. What role does the practitioner's awareness play when undertaking design activities? 6. Do practitioners develop strategies or employ tactics to encourage engagement with designing activities? 7. Do expert designs recognise and describe elements of their designing experience as fraught, painful, frustrating etcetera, what are the situations where these experiences arise? 8. Can we find evidence that expert designers learn to cope with the uncertainty and stress of designing; do they describe these experiences as essential and positive or as essential but negative? 9. To what extent do expert designers become content with their own discomfort? 10. When discussing with expert designers experiences of designing when they themselves are operating well, do they provide further examples of the descriptive concepts forwarded by Cross (2006)? When expert designers are asked to describe or define a good designer do they use Cross' descriptive concepts? 11. Can further evidence be found, by discussing motivations and difficulties with expert designs, that supports or refutes the idea that ideals and 'big ideas' are used as supportive and motivational tools in professionally difficult and trying times? 12. Do expert designers explicitly highlight the importance of an intense pressurised working environment? 13. Can evidence be found identifying tactics designers use to stimulate pressure, uncertainty and mental discomfort within their working practices? 14. Do designers, as suggested by Davies and Talbot, use creativity as a coping mechanism when faced with situations of extreme uncertainty and ambiguity? 15. Do other expert designers describe knowing that an idea is exactly right? 16. If designers are motivated to seek out creative 'illumination' experiences how does this affect their experience of other phases of the process and how does it affect their ability to explore prior to and after the experience? 	<ol style="list-style-type: none"> 1) What is design? 2) What is design for? 3) Why do you design, what are your motivations? 4) In your design practise what do you consider important? 5) How do you judge the quality of a design project? 6) How do you judge the quality of your input into a design project? 7) How would you define or describe a good designer? 8) How do you develop and improve your design practise? 9) What are the difficulties that designers encounter? 10) What are the situations that put you in greatest turmoil? 11) What role do your emotions play while you are designing? 12) How would you describe your general condition when you feel you are working well? 13) There are a number of different activities involved in a design process, could you describe what your mind is like when undertaking those activities? 14) Are there any key moments during your life or career where you feel that your perspective or understanding of design has changed the way that you either do design or think about what design is?

Table 3.4: Connecting conjectures, research questions and interview questions (original in colour)

Connecting conjectures, research questions and interview questions		
Conjectures	Research Questions	Interview Questions
Conjecture One - BP	Q1; Q7; Q10	Q1; Q3; Q9; Q10; Q11; Q12
Conjecture One - S1	Q5; Q7; Q11	Q1; Q2; Q3; Q4; Q7; Q12; Q13
Conjecture One - S2	Q1; Q2; Q3; Q4; Q7; Q8; Q9; Q14	Q1; Q3; Q6; Q8; Q9; Q10; Q11; Q12; Q13
Conjecture One - S3	Q1; Q2; Q3; Q4; Q7; Q8; Q9; Q14	Q1; Q6; Q7; Q8; Q9; Q10; Q11; Q12; Q13
Conjecture One - S4	Q2; Q3; Q4; Q5; Q6; Q7; Q8; Q9; Q12; Q13; Q14	Q1; Q6; Q8; Q9; Q10; Q11; Q12; Q13
Conjecture One - S5	Q1; Q4; Q7; Q14; Q15	Q1; Q3; Q4; Q6; Q7; Q9; Q10; Q11; Q12; Q13
Conjecture Two	Q1; Q3; Q4; Q5; Q6; Q9; Q10; Q11; Q12; Q13; Q16	Q1; Q2; Q4; Q6; Q7; Q8; Q11; Q12; Q13

3.4.3 - Research methodology and methods

This sub-section presents an overview of the research methodology and methods for this study.

Epistemology – Critical rationalism (Popper, 2002)

Methodology – Descriptive multiple-case studies following replication not sampling logic (Yin, 1993 & 2003)

Phenomenon under study – Expert designers' experience of designing. This defines the context of the cases under study

The selected cases – Mark Delany, Kevin McCullagh, Les Stokes, Adrian Stokes, Steven Kyffin, Tim Brown, John Thackara, and Sean Blair (refer to Section 3.5.5 for a presentation of the sampling rationale)

Unit of analysis – This is an embedded multiple-case study with multiple units of analysis (Yin, 2003: 40). The units of analysis are defined by the 2 conjectures stated in Section 3.6.2.

Data Type – Qualitative

Data collection method – Semi-structured interviews, using open-ended questions, audio recorded and fully transcribed

Analytical method – A cross-case discourse analysis structure by and intended to test the units of analysis, leading to a set of findings. The findings are discussed and related to relevant literature enabling conclusions to be drawn.

The phenomenon under study is expert designers' experience of designing. The use of case study as a research strategy will allow this study's theoretical propositions, presented above as two conjectures, generated through the literature review, to be tested by investigating expert designers' experience of designing through multiple-case studies using semi-structured interviews as the means of data collection.

3.5 - Data gathering

3.5.1 - Section purpose

The purpose of this section is to describe this study's data gathering procedures and the rationale behind the selection of specific techniques. The section presents the selection of semi-structured face-to-face interviews using open-ended questions, the sampling strategy and research participants of this study.

3.5.2 - Interview type

There are several types and styles of interviews. Robson (2002) describes three main styles: fully structured; semi-structured; and unstructured. A fully structured interview has predetermined questions in a pre-set order, however in a semi-structured interview the order of the questions can be modified based on the situation. Additionally, wording can be changed and explanations given if required. In comparison, an unstructured interview is generally informal, allowing the conversation to develop within and around the area of concern.

There are a number of advantages to using in-depth qualitative interviews. Firstly, an interviewer is in a position of greater control over the data gathering process than is a researcher using other methods such as textual analysis or ethnography. This provides researchers with more analytic control over their material. Secondly, qualitative interviewing offers in-depth exploration of an aspect of the interviewee's life, with which they have significant experience and insight. Thirdly, interviewing is an emergent technique giving flexibility in terms of opening up and pursuing new and unexpected leads (laddering). It was decided that semi-structured, in-depth interviews would be the most appropriate technique to use for the purpose of data collection.

3.5.3 - Interview delivery

When conducting in-depth interviews, which aim to closely examine and uncover experiences, views and beliefs it is important that the interviewee feels relaxed, comfortable and safe. The interview environment, the time allocated for the interview and the manner and approach of the interviewer can all affect how the interviewee feels and can influence the quality of the interview. The interviewee needs to feel that they can express their honest personal opinions without being judged. Adequate uninterrupted and distraction free time needs to be set aside to allow the participants to really consider what they truthfully think and feel regarding the interview question areas, without being pressured for a quick answer or the 'right' answer.

One of the major advantages of conducting a face-to-face interview is that the interviewer can be a 'marvellously smart, flexible instrument that can respond to situations with skill, tact and understanding' (Seidman, 1993: 16). Fontana and Frey (1994) state: the generation of data in qualitative interviews depend upon developing a rapport with the interviewee, which is most easily achieved through face-to-face contact. Conducting face-to-face interviews allows the interviewer to observe body language, the way that participants dress, their general mood and their confidence levels, which can elicit further important information. Crucially, the 'oral dimension of language (pitch, tone and so on) might identify whether what was said was spoken from a position of confidence, doubt, irony and so forth' (Mann and Stewart, 2000: 126).

For this study when the participants were based in the United Kingdom the interviews were conducted in a location and at a time chosen by the interviewee. Two of the participants were based outside of the UK, in Europe and North America, and in these cases the timing of the interviews and the location had to fit with their schedule during visits to Northumbria University. In one case this had no perceivable effect on the quality of the interview however the other interview was limited by strict time restrictions.

3.5.4 - Interview content

The structure to the interviews is defined by the conjectures and the Interview Question Template presented in Section 3.6.2. Robson (2002) states that researchers using semi-structured interviews ‘will have an initial topic but will then be to some extent guided by the interviewee’s responses as to the succeeding sequence of topics’ (Robson, 2002: 278). The interview questions presented in Section 3.6.2 should be considered as indicative of interview themes with a degree of tolerance for how discussion around that theme is initiated. As such the wording of the question and the order in which the questions are delivered may be altered dependent upon the interviewee and interviewer relationship and the reflections of the interviewer during the interview. Notes and prompts will be used in the interviews to ensure that the researcher covers the predetermined topics of interest. Each of the interviews will be audio recorded and word for word, fully transcribed. Where the researcher deems appropriate, subjects of interest to the area of study, initiated by the interviewee, will be followed and explored in the interview. A ‘lead’, initiated in an interview, will not be pursued if it is perceived as detrimental, in terms of time, to the pre-established interview content within the overall timeframe.

3.5.5 - Sampling

The logic behind sampling in case studies is different from statistical sampling. It follows replication, not sampling logic (Yin, 2003). According to Yin, ‘each case must be carefully selected so that it either (a) predicts similar results (a literal replication) or (b) predicts contrasting results but for predictable reasons (a theoretical replication)’ (ibid: 47). Therefore, qualitative sampling is primarily concerned with representatives; it seeks information richness and selects the cases purposefully rather than randomly (Gillham, 2000; Meyer, 2001).

Following the guidelines of replication sampling logic, this study aimed to select cases where similar results could be predicted. The choice of individual cases (expert industrial designers and/or design commentators) was directed by the purposeful sampling strategy and aided by a number of additional, more explicit criteria:

- a) Participants should have an exceptional reputation amongst designers and design educators.
- b) Participants should hold respected industry positions.

- c) Participants should have significant experience in the industry.
- d) Participants should have a history of success as measured by their CV of design related employment, design publications, prestigious project involvement and the number of design awards achieved.
- e) Participants should be available in the UK.

The study's participants (accurate at the time of data gathering) are:

Kevin McCullagh
Partner – Plan
<http://www.plan.bz>

Mark Delany
Partner – Plan
<http://www.plan.bz>

Les Stokes
Partner – London Associates
www.la-design.co.uk

Adrian Stokes
Adrian Stokes Associates
www.asadesigners.com

Steven Kyffin
Global Head of Design Research, Philips Design
www.design.philips.com

Tim Brown
President and CEO of IDEO
<http://www.ideo.com>

John Thackara
Director – Doors of Perception
Programme Director – DOTT07
<http://www.thackara.com>
www.dott07.com
www.doorsofperception.com

Sean Blair
SBL Consortia Leadership
<http://www.seanblair.co.uk/>

Curriculum Vitae for all of the participants can be found in Appendix B. Examination of the educational and professional backgrounds of the participants raised a number of issues relevant to the sample. Six of the eight expert designers took their undergraduate degree at Northumbria University (formally Newcastle

Polytechnic College). Inviting Northumbria University alumni to participate in the study was a deliberate course of action taken to increase the chances of participation. Since their undergraduate degree some of the expert designers had gone on to pursue a Masters degree at other educational institutions and their professional careers are varied and over periods of time ranging from 20 years to 40 years. It is felt that the common location of early formative training does not significantly influence the ability to generalise from the findings of the study. The primary concern is that the participants can be considered expert designers; their CV's validate this sampling criterion. A second issue is raised around the definition of 'designer' and the context of practice. Lawson (1994) used principles of architectural practices in his study of designers. Following this precedent, this study has involved principles of industrial/product design, design research, and design-strategy organisations. While six of the participants can be considered as strong, positive examples of the phenomenon of interest, two of the participants Blair and Thackara are atypical. Blair trained at undergraduate level in industrial design and began his career within mainstream product design; however, during his career he has moved into service design and participative leadership. It should be noted that Thackara does not have an educational background in a design discipline. Thackara was included in the sample due to his involvement in design programmes and because he fits the broader definition of designer¹. The inclusion of Blair and Thackara is considered positive as it allows data to be generated from atypical cases providing a different perspective from which to consider the units of analysis.

In total there were eight in-depth interviews, which took place between January 2006 and May 2006. The duration of those interviews ranged from thirty minutes to one-and-a-half hours. All have been audio-recorded and transcribed word-for-word (all full transcripts can be found in Appendix A, with one exception refer to Section 3.6.2 for an explanation).

¹ In Thackara's own book, 'In The Bubble: Designing in a complex world' (2005), a broad definition of designer is provided. Quoting from Simon (1969) and Papanek (1972), Thackara writes, "everyone designs," wrote scientist Herb Simon, "who devises courses of action aimed at changing existing situations, into preferred ones." For Victor Papanek, too, "design is basic to all human activities – the placing and patterning of any act towards a desired goal constitutes a design process." Designing is what human beings do" (Thackara, 2005: 1). Based upon this broad definition of design activity and therefore the definition of a designer, Thackara can legitimately be considered an expert designer.

3.5.6 - The disadvantages of interview driven data gathering

The lack of standardisation that is implicit in a semi-structured interview inevitably raises concerns about reliability and repeatability and biases are difficult to rule out. A further disadvantage is that interviewing is time consuming. If the interview duration is too short the value of the technique and the data gathered is seriously undermined; however, interview lengths of over an hour will place burden upon busy interviewees and could reduce the number of people willing to participate and in turn lead to bias. Also interviewing is time consuming in terms of organisation of interviews, transcription, and analysis. Aware of these disadvantages, the study was organised to minimise their negative impact.

3.6 - Analytical processes

3.6.1 - Section purpose

The purpose of this section is to consider the format and processes whereby the data are to be analysed and presented.

3.6.2 - Presenting the data

Strauss and Corbin (1990: 21-22) describe three different approaches to presenting data gathered using quantitative methods, each approach differs in the researcher's interpretation of the data:

- 1) The data should not be analysed. The researchers task is to gather data and present them in such a manner that the informants speak for themselves. The aim is to give an honest account with little or no interpretation. The philosophical principle underlying this approach is that by presenting a faithful account, the researchers' biases and presence will not intrude upon the data.
- 2) Data should be presented as an accurate description. Often it is necessary to reduce the data because it is not possible to present it all to the readers. Reducing and ordering materials of course represents selection and interpretation, but the principle is to present an accurate description of what is being studied. Following this approach researchers typically intersperse their own interpretive comments in and around long descriptive passages and quotations from interview field-notes.

- 3) Data is used to build theory. Building theory implies interpreting data, for the data must be conceptualised and the concepts related to form a theoretical rendition of reality. Grounded theory, according to Strauss and Corbin:

Is one that is inductively derived from the study of the phenomenon it represents. That is, it is discovered, developed, and provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon. Therefore, data collection, analysis, and theory stand in reciprocal relationship with each other. Rather, one begins with an area of study and what is relevant to that area is allowed to emerge (ibid: 23).

In Chapter 4 the empirical study's data are presented. The data are presented in a manner that would fit between the presentation approach 'data should not be analysed' and 'data should be presented as an accurate description' as described by Strauss and Corbin. In order to present the data in this document, the full interview transcripts have undergone a process of filtering and reduction. In Chapter 4 each case is presented individually, data are presented in the order gathered during the interview and the interviewee excerpts presented are time and order coded; however, the interviewee responses to the interview questions has been edited from the full interview transcript. In undertaking this filtering process the researcher has attempted to present the data that, 'best represents' the interviewees' response to the interview questions and touches upon the research themes defined by the study's theoretical conjectures. While the criticism can be made that this is an invisible process and is open to bias, the researcher presents all the full interview transcripts in Appendix A for the reader to question the accuracy of the data presented in Chapter 4. Additionally, the text of the transcripts presented in Appendix A, are highlighted and coded to make it clear which excerpts are presented in Chapter 4. With the exception of one, each of the participants, after seeing the full interview transcript (refer to Appendix A) and the edited data presentation (refer to Chapter 4), have given their permission to use their name in the thesis and quote the material as representative of their views expressed during their interview (refer to Appendix C to view the participants' permission). Adrian Stokes wished to edit the interview transcript, re-writing his verbatim interview responses, before giving permission for his name and the document to be published.

3.6.3 – Data analysis

Miles and Huberman, cited in Robson (2002: 475), describe three components of data analysis: data reduction, data display, and conclusion drawing and verification. This study adheres to these flows of activity with the exception that refutation is pursued as opposed to verification, for the reasons explained in Section 3.2.2.

Data reduction occurs as a consequence of the analytical choices the researcher makes to manage data. The process of data reduction:

Starts before any data are collected, when you focus the study and make sampling decisions about people to interview, places to visit, etc. During and after data collection, you have to reduce the mountain through the production of summaries and abstracts, coding, writing memos, etc. (ibid: 476).

In this study, the pre-data collection data reduction decisions include: the selection of case study strategy; sampling decisions, replication logic and the selection of cases to study; the development of theoretical conjectures; and the questions used to structure the interviews. Data reduction also occurs in the translation from the full transcripts to the data presentation as explained in Section 3.6.2. Further data reduction takes place in the analysis of the data, presented in Chapter 5, where data are ordered and categorised by the units of analysis (the study's conjectures). Data reduction and data display are highly related where the methods of data display make the quantity of data reduction apparent and visible. Methods for data reduction and display include:

- Session summary sheets, which include information about who was involved, issues covered, relevance to research questions, new hypotheses suggested, implications for subsequent data collection;
- Document sheets, which summarises and clarifies contextual issues and session content;
- Developing coding categories, which apply symbols to sections of text classifying or categorising them, usually, in relation to research questions, concepts or themes;
- Data displays, which include, as main types, matrices (i.e. tables with rows and columns) and networks (i.e. a set of boxes or 'nodes' with links between them).

In this study, excerpts from the interview transcripts are data coded to identify individual data sections. These data sections are presented in Chapter 4. Chapter 5 presents data matrices for each conjecture. These data matrices illustrate which data sections support or refute the study's conjectures. Following these matrices a discourse analysis is presented. The discourse analysis tests the conjectures by considering data that support and refute their claims.

Miles and Huberman, cited in Robson (2002: 483-485), suggest thirteen tactics for assessing the quality of qualitative data analysis, these tactics are organised under the headings, 'assessing data quality', 'testing patterns' and 'testing explanations'. The tactics associated with data quality are sampling issues and include:

- Checking for consistency of case choices with the declared sampling logic; checking for the researchers effect on the case and the effect the case has upon the researcher;
- Using triangulation, ideally so that the verification process is built into data collection;
- Weighting the strength of the data, which is affected by the trust one has in and the truthfulness of informants.

In order to test patterns the following tactics are recommended:

- Checking outliers, the exceptions that do not fit the overall pattern;
- Using extreme cases, which are atypical situations or people rather than the data they provide which may or may not be atypical;
- Following up surprises as these may indicate something at variance with the current theory and exploration may afford theoretical developments or revisions;
- Looking for negative evidence, actively seeking disconfirmation of what you believe is true.

Five tactics are advised for testing explanations, they are:

- Testing possible relationships by making if-then tests;
- Considering other factors or variables which may cause or influence the relationship which has been conjectured so that spurious relationships can be ruled out;

- Identifying repeating findings in a different context or data set, which is a form of triangulation;
- Testing a theory by conjecturing rival explanations and seeing if the data equally supports the rival;
- Getting feedback from informants on the proposed findings.

Chapter 5 presents a cross-case data analysis. In the presentation of the data analysis each conjecture and conjecture stage is analysed separately. Each conjecture is tested across the cases, segments of coded data that confirm or refute the conjecture are examined and rival (Yin, 2003) explanations are considered. If findings are repeated in more than one case these are presented as a form of triangulation. Data sections that directly support or refute a conjecture or conjecture statement are highlighted and where data sections indirectly or by implication support or refute a conjecture or conjecture statement these are discussed. Where the data suggests conjecture modifications or extensions these are discussed and explicitly stated.

3.7 – Chapter summary

The first objective of Chapter 3 was to discuss different research traditions and their methods, outlining which methodology and research strategy is appropriate for researching experience. The second objective was to forward the study's theoretical propositions as conjectures and detail the rationale, methods and procedures for an empirical study that will allow the conjectures to be tested and for conclusions to be drawn. Through the content of this chapter those objectives have been met.

Section 3.2, philosophical assumptions, reviewed the epistemologies of classical empiricism, classic rationalism and critical rationalism and the research traditions of positivism and interpretive social science. This section stated that this study would follow the process of conjecture and refutation, under the epistemology of critical rationalism and that the phenomenon of study in this research project would be best addressed using qualitative data and the research methods from the social science tradition.

Section 3.3, qualitative research methods, established case study strategy and semi-structured interviews as the appropriate bases for this study's general aim to be

addressed, and for this study's selected research questions and conjectures to be tested.

Section 3.4, research design, presented this study's conjectures, described the research design for an empirical study and declared the questions that would structure the proposed interviews.

Section 3.5, data gathering, discussed the rationale behind the choice of semi-structured, face to face, interviews using open-ended questions within this study. This section presented replication as the logic driving the selection of cases and the individuals who participated in this study were disclosed.

Section 3.6, data analysis, considered the format whereby the data, generated through the empirical study, are to be presented and the processes for analysing the study's conjectures.

Chapter 4 presents the data gathered through the interviewing and transcription processes, Chapter 5 presents the data analysis and Chapter 6 presents a discussion about the relevance of the study's findings to the theoretical propositions identified and presented in the study's literature review.

CHAPTER FOUR - Data Presentation

A presentation of the data from the research's eight case studies

4.1 – Chapter purpose

The purpose of this chapter is to present the data from this study's eight case studies. The data are presented in a manner that would fit between the presentation approach 'data should not be analysed' and 'data should be presented as an accurate description' as described by Strauss and Corbin (1990: 21-22). In order to present the data in this chapter, the full interview transcripts have undergone a process of filtering and reduction. In undertaking this filtering process the researcher has attempted to present the data that, 'best represents' the interviewees' response to the interview questions and has filtered out the data not relevant to the study's theoretical conjectures. The full transcripts are presented in Appendix A and are highlighted to make it clear which excerpts have been extracted as data.

With one exception, all of the participants, after seeing the full interview transcript (refer to Appendix A) and the edited data presentation (refer to Section 4.2), have given their permission to use their name in the thesis and quote the material as representative of their views expressed during their interview. Adrian Stokes wished to edit the interview transcript, re-writing his verbatim interview responses, before giving permission for the document to be published. Section 4.2.4, presents the data sections from transcript that Adrian Stokes edited.

In Section 4.2 each case is presented individually, data are presented in the order gathered during the interview and the data sections presented are time and order coded. Each interview question is labelled to match the Interview Template Questions presented in Chapter 3, Section 3.4.2. The coding for each piece of data describes: the case number; the Interview Template Question number; and the position of the data in response to the interview question. For example, data relating to case study one, Kevin McCullagh, from interview template question 3, which is the fourth piece of data for that interview question, would be coded: [1.3.4].

In Chapter 5, the codes presented in this chapter, are used in data matrices to illustrate which data sections support and refute the study's conjectures. The codes are also used to refer to specific data in the discourse analysis in Chapter 5.

4.2 – Data presentation

4.2.1 – Case study one

Interviewee: Kevin McCullagh, Co-Founder of Plan

Date: Wednesday 18th January 2006

Location: Plan Design, London

Time: 1403

Interview Template Question One

Time: 13 seconds

Interviewer: What is design? What does design mean to you?

Kevin McCullagh:

Time: 15 seconds

[1.1.1] It's the mark of humanity.

Time: 17 seconds

[1.1.2] It's conscious problem solving.

Time: 28 seconds

[1.1.3] It is about problem solving and planning the execution.

Time: 39 seconds

[1.1.4] Professional product designers, are for me, people who have gone through some formal training, have a conscious understanding of the processes by which they solve problems and they have also gone through some kind of Darwinian selection process.

Interview Template Question Two

(Interviewee also responds to Interview Template Question Three)

Time: 1 minute 25 seconds

Interviewer: From a personal, social or an economic perspective, what is design for?

Kevin McCullagh:

Time: 2 minutes 06 seconds

[1.2.1] What motivates me about being involved in product design is that it's, it is contributing to progress, hopefully, and making the world a better place in very small ways.

Time: 2 minutes 22 seconds

[1.2.2] What I really like about it is that it's at the nexus of a few different spheres, many people these days work in highly specialised spheres, we sit at the nexus of society, of business and of technology.

Time: 2 minutes 58 seconds

[1.2.3] Good designers have to be able to balance off all those different [elements], an understanding of people, sociologically, anthropologically, emotionally even spiritually. We need to understand how a business can make money we need to know about market segments and production costs, distribution, brand and all that sort of stuff and also understand the opportunities of technology and also the constraints of technology.

Time: 3 minutes 30 seconds

[1.2.4] These are three areas [society, business and technology] that fascinate me, and being able to bounce around those spheres and come to an optimum solution, I find very satisfying.

Time: 3 minutes 44 seconds

[1.2.5] On a more subjective level I like being creative and I like working with creative people.

Time: 4 minutes 10 seconds

[1.2.6] As most product categories mature they can no longer compete on price and functionality so companies have to differentiate through more subjective softer factors, like how easy is it to use, like how attractive it is to the target market and that's why companies turn to design more and more for competitive advantage.

Time: 7 minutes 28 seconds

[1.2.7] I think it enriches material culture, so if we're talking about products, the objects around us, hopefully, are more pleasing and meaningful and more pleasurable to interact with.

Interview Template Question Four

Time: 14 minutes 34 seconds

Interviewer: On a project-by-project basis, but also day-by-day, what are the aspects of your work and your working relationships that you put great value on or that you think are important?

Kevin McCullagh:

Time: 15 minutes 50 seconds

[1.4.1] I think why clients choose us is that we're senior and experienced and big picture, so we can engage with their business situation, we take on board what their business situation is, what their market situation is, what their strategy is, we try, we often get involved in what's the business case for this project.

Time: 16 minutes 40 seconds

[1.4.2] We're very good at what I used to call it clarity at the front end [...] just framing what the issues are, really framing what the opportunities are and really being able to take things through in a really coherent, cogent way and then interface with the design process very well.

Time: 17 minutes 10 seconds

[1.4.3] I just really enjoy the, tackling the really high level complex problems that the client doesn't even understand really and going back and really presenting back the problem to them in a far more precise manner and saying '*Right these are the alternatives and this is the route we're taking*' and then taking them with us.

Time: 17 minutes 39 seconds

[1.4.4] Being able to add a lot more consciousness and rigour to that early phase, I think that's probably most important from the clients' perspective.

Time: 17 minutes 58 seconds

[1.4.5] As much as I love the craft side of design, you know finessing a detail and all the rest of it, if I did that all the time I would get bored of it. I like the engagement with technology, with marketing, with the business case, I guess I am motivated by new and complex problems and interfacing across disciplines. I think that's what's important to me is being involved in, not cranking the handle and solving similar problems that were done before really engaging with new and complex ones and trying to solve it.

Interview Template Question Five

(Interviewee also responds to Interview Template Question Six)

Time: 18 minutes 42 seconds

Interviewer: How do you personally judge the quality of a design or a design project, how after a project has been completed do you personally judge its quality?

Kevin McCullagh:

Time: 19 minutes 17 seconds

[1.5.1] My instinctive assessment of the quality of the final end product, so forget everything else, is it a great product, not from my point of view but from the point of view of the market segment it's aimed at, that's a very instinctive level.

Time: 19 minutes 40 seconds

[1.5.2] To what extent have we solved the clients' problem.

Time: 20 minutes 09 seconds

[1.5.3] To what extent have we pushed our own understanding and processes forward, we've now got a more conscious way of segmenting this market, we've got a better way of describing how something evolves over time.

Time: 20 minutes 30 seconds

[1.5.4] Instinctive product reaction, how well resolved is it, how well does it stand up on its own right if you don't know anything about the project, have we done a good job for the client and how have we progressed our own understanding of the processes.

Interview Template Question Seven

Time: 21 minutes 40 seconds

Interviewer: Would you be able to describe, or define, what you think makes a good a designer?

Kevin McCullagh:

Time: 21 minutes 55 seconds

[1.7.1] Someone who's inquisitive, wants to make the world a better place, interested in those three spheres people, technology and business, someone who is goal-orientated, lots of people are very creative but they can't make decisions and they're just scatter-gun, you know. So someone who's, obviously it goes without saying that they're creative and can generate a lot of ideas, but they

can, relatively quickly, filter those ideas and narrow down to a few directions. Someone whose got all the basic skills.

Time: 23 minutes 02 seconds

[1.7.2] The stuff that makes someone a really great designer is that black magic craftsmanship of finessing the detail of picking a colour that just no one would expect but it just works or coming up with a little bit of magic that really adds a bit of wow factor to it, that's the really hard stuff.

Time: 23 minutes 34 seconds

[1.7.3] They've got to be able to communicate, they've to be able to present, not only technically well, you know, being able to put together a step-by-step presentation, but they've really got to be able to sell the real value of what they've done in a concise impactful way.

Interview Template Question Eight

Time: 24 minutes 14 seconds

Interviewer: How do you develop your own design practice? Is there anything that you purposefully do to help you develop the way that you practice design?

Kevin McCullagh:

Time: 24 minutes 31 seconds

[1.8.1] I am very self-critical. I am always looking for ways to do things better.

Time: 24 minutes 47 seconds

[1.8.2] In this kind of strategic end of design there's all sorts of little sorts of rationale glitches where you almost have to make a little bit of a leap of faith, I would love to be more convincing at that stage in the process.

Time: 25 minutes 05 seconds

[1.8.3] I do have a general big picture goal, I am aware that I could be a lot better a lot more joined-up. Because ultimately I want to bring the same rigour that McKinsey brings to management I want to bring to design, so I have that big long-term aim if you like.

Time: 25 minutes 55 seconds

[1.8.4] In the cut and thrust of solving complex problems you're drawing on your past experience but not particularly consciously, not in a particularly rigorous way you're remembering stuff that comes to you. But if you can

distil, by theorizing a bit, by coming up with some general observations that you think will work outside of that project and documenting them, so documenting our process and best practice processes, and then ideally doing a debrief and feeding the conclusion of how we can do things better back into those best practices processes.

Time: 27 minutes 29 seconds

[1.8.5] I want to try to and make my assumptions more explicit in the ways I am doing things more explicit so people can understand why we are doing stuff and it will be easier to bring people on and bring them up to speed quicker.

Time: 27 minutes 56 seconds

Interviewer: In your previous roles as a design manager or as a designer, did you have different ideas about how you should develop your practice or do you have any observations about other designers and how they try to develop their practice?

Kevin McCullagh:

Time: 28 minutes 33 seconds

[1.8.6] There is a real thirst for new experiences and working with new types of products, working with new types of people, people you respect.

Time: 28 minutes 42 seconds

[1.8.7] I think the general approach is that people want to work on product categories that excite them, whether that be, cars, mobile phones, or furniture or whatever. They want to work for clients who are smart, ask the right questions, open-minded, they want to work with, they want to get exposure to people they really respect. So it's very much learnt by doing and working with the best.

Time: 31 minutes 34 seconds

Interviewer: You might have already answered parts of the next few questions. I was wondering if you could describe the role of the designer in the process of a design project from the different perspectives that you have had over the years?

[No data sections deemed relevant to the units of analysis]

Interview Template Question Nine and Ten

Time: 37 minutes 28 seconds

Interviewer: What are the difficulties that a designer faces, what are the design situations that put you in greatest turmoil or conflict?

Kevin McCullagh:

Time: 37 minutes 45 seconds

[1.9/10.1] The client changing its mind! That's the number one definitely, that they, they ask for one thing then change their mind [...] [they may have] originally said no it's got to be this way then they change their mind and that can happen in all sorts of different respects but it's incredibly frustrating and you can waste an awful lot of time and effort because of that and that's why it's so important to try to do this clarification upfront.

Time: 38 minutes 54 seconds

[1.9/10.2] I guess it's frustrating, when internally, when there's a miscommunication within the team about what's actually required.

Time: 39 minutes 20 seconds

[1.9/10.3] This is a bit of a personal bug bear; when people just want to slip into a pattern that they're familiar with, '*So we did this with the last project let's do that*', rather than go, '*Well what's actually the right thing to do on this project*'.

Time: 39 minutes 40 seconds

[1.9/10.4] The worst thing is client's changing, changing the rules, changing their minds completely, just being chaotic.

Interview Template Question Eleven

Time: 39 minutes 57 seconds

Interviewer: What role do you feel your emotions play when designing? Do they have any influence on how you go about doing things?

Kevin McCullagh:

Time: 40 minutes 20 seconds

[1.11.1] I think that gut reaction, gut feel is incredibly important to good designers and I always understand that as, that gut reaction that is subconscious is actually distilled wisdom, so it's not just a random emotional

reaction it's a sub-conscious distillation of your opinions, experience, knowledge and you can't necessarily unpick.

Time: 41 minutes 58 seconds

[1.11.2] I think that emotions in that respect are very important but I don't want to overly mystify those emotions [...] it's kind of tacit knowledge stuff that you have known and then forgotten but that's still there.

Time: 42 minutes 21 seconds

[1.11.3] To a certain extent that is what clients are buying, they're buying expert instinct.

Time: 42 minutes 42 seconds

[1.11.4] At the decision making level, '*Is this the right thing to do, umm*', you know, and you can first of all you feel the emotion and then you can probably verbalise it, but that's kind of post-justifying the instinct and sometimes you change your opinion and I am always a bit worried about that because you're always trying to bring a level of, if it doesn't feel right then it's worth digging around and double checking but normally you trust it but try to understand it a little bit more, so I think that's incredible important.

Time: 43 minutes 21 seconds

[1.11.5] I think that, how just you're feeling generally, whether it's a bloody horrible day or you've just had an argument with your girlfriend or whatever, that can affect obviously how you're working, and I think that some people are incredible affected by that. I am a bit more like this [hand held steady] but some people can be really up and down so that's obviously important.

Interview Template Question Twelve

Time: 44 minutes 20 seconds

Interviewer: That leads quite nicely to the next question, would you be able to describe your general condition when you feel your working really well?

Kevin McCullagh:

Time: 44 minutes 50 seconds

[1.12.1] A few of weeks before the end of the project where I really feel that I have got a rich, clear understanding of all the issues and we've got some good ideas.

Time: 45 minutes 10 seconds

[1.12.2] Often the first month or so you're kind of stabbing away and it's all a bit hazy and you're a bit worried you're going in the wrong direction, there's some really niggley bits of things that we just can't get to the bottom of and all that sort of stuff which, there's always that uncertainty at the start of a project *'Are we going to be able to pull it out of the bag this time'*.

Time: 45 minutes 56 seconds

[1.12.3] I feel that it's that interaction between understanding and intuition where you've got a concept, you're refining it you're bringing in other elements that enrich it and that best happens when there's a small group of you, between 3 and 6, you're all cooking on gas you're all coming up with ideas, everyone understands, everyone's motivated.

Time: 46 minutes 29 seconds

[1.12.4] I think being excited about the project is important.

Time: 46 minutes 44 seconds

[1.12.5] I think caring about the end product.

Time: 46 minutes 54 seconds

[1.12.6] It's after you've got the idea but you're really, really sort of tying it down and refining it and pulling in all of the, adding layer upon layer of richness to it through the understandings you have of all the different constraints that, *'Hey we can resolve this brilliantly by, you know'*, you know, where it all starts to come together, it's almost that explosion in reverse where, (ha)!

Interview Template Question Thirteen

Time: 47 minutes 31 seconds

Interviewer: Obviously there are a number of different activities that you have to go through in your role, would you be able to, if you're able to, describe what you think your mind is like when undertaking those activities well?

Kevin McCullagh:

Time: 48 minutes 13 seconds

[1.13.1] Well if we start with taking the brief, you know, really sort of, in active listening mode really, really trying to understand what the client problem is, and the clients don't tend, clients differ enormously in their ability to explain

the problem and the context of that problem [...] so it's active listening, trying to empathise, put myself in their shoes and really understand why, what the problem is and why they're asking us to do something in a certain way, and if things don't line up I'll be asking questions, asking questions until I understand the context, understand the problem, understand why you're asking us to do it that way, but fundamentally it's getting to the heart of the problem, active listening I guess.

Time: 49 minutes 32 seconds

[1.13.2] So active listening and empathy I guess would be one way of describing my mind.

Time: 49 minutes 47 seconds

[1.13.3] Writing a proposal, then I go into being obsessed about structure, breaking down the problems getting things in the right order, working out what we need to find out, what's the best way, a cost/time effective way of doing it.

Time: 50 minutes 08 seconds

[1.13.4] So it's all very super rational, breaking things down.

Time: 50 minutes 19 seconds

[1.13.5] Probably one of the first things I do either individually or as a quick chat is having a gut check, you know what do we think is the solution here, it's almost like a quick hypothesis and that's important as well.

Time: 50 minutes 45 seconds

[1.13.6] So there's a certain level of quick gut check and then right let's break things down in a very, sort of, rational way.

Time: 50 minutes 59 seconds

[1.13.7] Assuming we get the project there's quite a frenzied and pragmatic problem solving phase of, where you're actually trying to set things up, and, *'Oh, we thought we could use that freelancer and now we've got to err, how are we going to fit that all in that time'* and you've got to design a project [...] that is normally frenzied and highly non-ideal and you, you're having to make very quick decisions.

Time: 52 minutes 08 seconds

[1.13.8] Typically we would go into some sort of understanding, research and understanding phase whatever form that takes and that will be quite rigorous and laborious, where you're just in absorb and analyse mode.

Time: 52 minutes 33 seconds

[1.13.9] Then there's a period of just playing around with some of the results and a crunch time of going '*Right what does it all mean and what are we going to do*' which is a real crunch time which you always get a knot in your stomach and '*God we're going to have to come down and stick a flag in the sand somewhere*' and going back to gut reactions again testing things out doing quick and dirty checks about '*Well if we do that then what does that mean, would it, ah*', checking things back.

Time: 53 minutes 15 seconds

[1.13.10] Then it's coming up with ideas, filtering, you know, which is quite a hot and cold thing, up and down thing, where you'll feel passionate about some and you'll hate others, you'll be indifferent about others, there'll be arguments, people will disagree, it's a bit of an uncomfortable phase.

Time: 53 minutes 42 seconds

[1.13.11] Then it'll be getting to the phase when you've narrowed down to an idea and then you're just resolving it you're sorting out all of the issues you're aligning it with other parts of the project.

Time: 54 minutes 01 second

[1.13.12] The final one, you get into the story telling thing, when you go right how are we going to communicate the most important parts of this project, both in terms of how we reached the decisions we did, but also why is it such a great product. I quite enjoy that, it's kind-a like getting into a film story-board where you have to do that before then and that's really important let's slow down at this point, let's just set the context, step back and then zoom in.

Time: 54 minutes 40 seconds

[1.13.13] The last thing is that you go into salesman mode, get yourself pumped-up, get the energy levels up and you really believe in what you've done and go for it in terms of telling the client about it.

Interview Template Question Fourteen

Time: 58 minutes 01 second

Interviewer: And my final question, which you may or may not have an answer to, are there any moments over your career where you feel that your understanding or view of design or you and your role as a designer has changed fundamentally or considerably?

[No data sections deemed relevant to the units of analysis]

4.2.2 – Case study two

Interviewee: Mark Delaney, Co-Founder of Plan

Date: Wednesday 18th January 2006

Location: Plan Design, London

Time: 1526

Interview Template Question One

Time: 53 seconds

Interviewer: What do you feel design is?

Mark Delaney:

Time: 1 minute 23 seconds

[2.1.1] Solving problems and making things, manufacturing, and on the other side there is the more emotional sort of thing that is about making people feel better. I think the answer is somewhere in the middle and you range between those poles appropriately according to the project.

Time: 2 minutes 10 seconds

[2.1.2] What isn't design, it's a real, it's just a balancing act, balancing out lots of different things and trying to find the right balance between a lot of conflicting demands.

Interview Template Question Two

Time: 2 minutes 25 seconds

Interviewer: This might have a number of different levels or stakeholders, but what do you feel design is for? What are its benefits?

Mark Delaney:

Time: 3 minutes 20 seconds

[2.2.3] I think design is all about creating value but it depends where those values lie, that's very flexible.

Time: 3 minutes 30 seconds

Interviewer: During your time in the industry do you feel that your understanding of what design is has changed, and if that is so, how did you understand design in the past and how do you understand it now and where do you think the future direction is?

[No data sections deemed relevant to the units of analysis]

Interview Template Question Three

Time: 6 minutes 03 seconds

Interviewer: My question is about what motivates you, why do you do design?

Mark Delaney:

Time: 6 minutes 59 seconds

[2.3.1] Products seemed to balance a lot of the interests I'd had, trying to solve problems, trying to make things, tying together sort of function, form.

Time: 8 minutes 00 seconds

[2.3.2] Product design intrigues me, you know, it's still, I like this balance of creativity, my personality, my own creative ego, but actually solving things, trying to make things better.

Time: 8 minutes 29 seconds

[2.3.3] Vernon Panton, I think, said that he designed because somewhere out there hidden just out of view is a better way of doing something and that's the sort of thing that gets you out of bed in the morning.

Time: 8 minutes 38 seconds

[2.3.4] Charles and Ray Eames, when they were asked to define design and they said it's the best you can do by next Wednesday.

Time: 8 minutes 52 seconds

[2.3.5] Design doesn't allow you to get to self-indulgent because you always have clients, you always have the struggle of trying to please the client, your own creative impulse, the struggle of trying to deal with manufacturing constraints and I like wrestling with all those things and trying to mould something that has worth.

Time: 9 minutes 25 seconds

Interviewer: If those are the motivations on a project-by-project basis, what are the day-to-day motivations, what are the things that as a designer, what are the day-to-day tasks that excite you about design?

Mark Delaney:

Time: 9 minutes 44 seconds

[2.3.6] There is that moment when you're doing design where it's a bit of a struggle and then something clicks and it works, that's one of the reasons, that's a real buzz, you know you've got it and you just know how to do it.

Time: 9 minutes 58 seconds

[2.3.7] Even now, after God knows how long that you're doing it, whenever you get a project in there's still a little bit of panic at the start of it, '*Shit, I don't know what I am going to do, I don't know what the answer is*', and that's, that fear is quite enjoyable. I think the moment I loose that fear is the time that it's like time to give up!

Time: 10 minutes 24 seconds

[2.3.8] Working with designers that are better than me, learning from them.

Time: 10 minutes 30 seconds

[2.3.9] Creating teams with different skills, different people and sort of being able to form that into something that's coherent and a bit more than the sum of it's parts, that's quite exciting.

Interview Template Question Four

Time: 10 minutes 43 seconds

Interviewer: Within, or while designing what do you consider important, what are the important bits to you?

Mark Delaney:

Time: 10 minutes 56 seconds

[2.4.1] The physical act of getting down to the sketch-pad and doing something; I'm trying to go through the mental process of questioning: I think a constant questioning is always needed, '*Is this appropriate, is it right?*'

Time: 11 minutes 14 seconds

[2.4.2] I see a lot of young, and old designers, who are very wary of pushing themselves too far out of their comfort zone, trying to challenge yourself is kind of important.

Time: 11 minutes 25 seconds

[2.4.3] You know, drawing something; *'Is it right'*, really asking yourself some hard questions and if it doesn't pass those hard questions then being prepared to tear that idea up and then have another idea.

Time: 11 minutes 37 seconds

[2.4.4] Not being too precious about the work that you do I think that's key especially when you come out of college and you've done all your own work and some sort of, all my own stuff, and I think there's a learning curve that a lot of young designers find quite tough when they get into the real world, it's that team thing, where it doesn't matter where it comes from, it's a good idea and being able to bow to the will of the group sort of thing and realise that I might really like this but it's not appropriate.

Time: 12 minutes 10 seconds

[2.4.5] When you're dealing with a brand like Samsung; *'Ok this is a really good idea, I've come up with this shape, this form, this phone, this idea, it's brilliant, it's great, actually it's not appropriate to Samsung one iota'*, and having the balls to put that down and say *'That's a really great idea but it's not appropriate, let's find some really appropriate ideas'*, I think that's a real challenge for a lot of designers, being able to admit that perhaps their idea isn't the best idea all the time.

Interview Template Question Five

(Interviewee also responds to Interview Template Question Six)

Time: 12 minutes 49 seconds

Interviewer: How do you go about judging the quality of something you've designed or a design project that you have been involved in?

Mark Delaney:

Time: 13 minutes 32 seconds

[2.5.1] What we're trying to do is combine, we still rely on, on design, on a designer's gut feeling, their intuition, we spend a lot of time trying to inform and check that, that intuition with research.

Time: 14 minutes 16 seconds

[2.5.2] Finding criteria, certain sets of criteria that allow you to judge things and it almost stops it being my taste, your taste and starts it being, '*Is it appropriate*'.

Time: 14 minutes 28 seconds

[2.5.3] I think that question is always going through my head, all the time, '*Is it appropriate? Is it appropriate to the user? Is it appropriate to the brand? Is it appropriate for the market, for the market they're trying to fit it to? Is it appropriate for what the brand is trying to achieve in the short term in the long term?*' All those sorts of questions you're constantly battling those things.

Time: 14 minutes 45 seconds

[2.5.4] Every now and again you get something that comes from left field which is absolutely right and that's like the snake-horn of the design process and occasionally a brief comes in and the moment you see the brief it's like (pop), '*I know how I'm going to solve that*' and that's when it's good. But occasionally you get ones like, '*I have no idea what we're going to do there*', and you just find a way through it.

Time: 15 minutes 11 seconds

Interviewer: So how would you define your idea of good design? Either when judging stuff you've worked on yourself or other pieces?

Mark Delaney:

Time: 15 minutes 38 seconds

[2.5.5] In terms of our projects I would judge it in terms of '*Is it appropriate*' is probably the main question I'm constantly asking, it's got to meet all those criteria, appropriateness criteria and one of those criteria is does it look good, that sort of thing, but a whole bunch of brand related, consumer related criteria that it needs to fit.

Interview Template Question Seven

Time: 16 minutes 47 seconds

Interviewer: How could you describe a good designer then, or what makes, in your opinion, a good or appropriate designer?

Mark Delaney:

Time: 17 minutes 05 seconds

[2.7.1] I think often the role of the designer is to communicate, you know, you communicate between the demands of the consumer, the marketing department, the engineering department, the brand guardians and often these people are pushing you in completely different ways, you know, their pulling you apart, they all want to achieve the same thing, they all want to achieve, but as a designer you're stuck in the middle of these people.

Time: 17 minutes 50 seconds

[2.7.2] So a good designer has got to be, has got to have a sensitivity to all these demands and has got to be able to create solutions that allow all these things to get what they need to a certain, to a greater or lesser extent.

Time: 18 minutes 05 seconds

[2.7.3] You've got to be able to balance things, you've got to be able to trade off things, you've got to be able to negotiate and realise when you can push for something and when you can't push for something, when to push hard and when to pull back, how to make compromises.

Time: 18 minutes 22 seconds

[2.7.4] There's this idea that the best designers are uncompromising and it's their vision, their vision that must go through and, yeah, to a certain extent that's true, there are some great designers who have that leeway, but in the main, most products, most projects aren't run that way, it's a series of compromises so I think that's key to being a good designer.

Time: 18 minutes 51 seconds

Interviewer: That leads quite nicely to my next question, what do you feel are the attributes or characteristics that would make a person effective when undertaking a design process or design activities?

Mark Delaney:

Time: 19 minutes 08 seconds

[2.7.5] I think when you're undertaking design processes you need to have a good degree of empathy for other people and other points of view.

Time: 19 minutes 38 seconds

[2.7.6] You need to be, have an empathy not just with the design premise but outside your realm of experience.

Time: 19 minutes 47 seconds

[2.7.7] Too often I see products designed by young mid to late twenty guys for other mid to late twenty guys and you sort of see things at the moment, there's whole markets out there just not being addressed at all not because there isn't any money in it, you sort of, take things like elderly people, they've got money coming out of their elderly ears but no-one is really addressing them with products that they want because they just don't think it's sexy or glamorous.

Time: 21 minutes 00 seconds

[2.7.8] Designers need to get a lot better at stopping designing less of the things that they get turned on about in T3 and a bit more of what people need.

Interview Template Question Eight

Time: 21 minutes 15 seconds

Interviewer: How do you go about developing or improving your design practice?

Mark Delaney:

Time: 21 minutes 25 seconds

[2.8.1] I think it's important as a product designer to constantly question what you're doing and why you are doing it, *'Is this the best way?'*

Time: 21 minutes 40 seconds

[2.8.2] At Plan and at Samsung we did make a concerted effort to try to improve ourselves all the time to get better and know where our weaknesses were and try and improve those.

Time: 21 minutes 50 seconds

[2.8.3] I don't have any structure that I'm working to here, at the end of each project at Plan we'll look back and say *'Ok what went wrong, what didn't go so well, how can we fix that next time, what were the issues?'*

Time: 22 minutes 14 seconds

[2.8.4] I think constantly, a constant process of self assessment and being very critical with yourself, you know, not... even if the client is happy with it, you know '*Hold on is that good enough*', you don't tell the client that but, checking out, always keeping an eye on the quality.

Time: 22 minutes 36 seconds

Interviewer: Ok, would that be the quality of the final output you're checking or your decisions throughout the process, or the quality of your interactions or meeting with clients or would you try to take every aspect...

Mark Delaney:

Time: 22 minutes 59 seconds

[2.8.5] You find you take a briefing your understanding of it and you report that back to the client and they agree and then two weeks later, '*No that's not what I meant*'.

Time: 23 minutes 25 seconds

[2.8.6] There's always ways you can improve and at times if we've had a good relationship with the client we will involve them in those critiques if they want and we've done that a couple of times and the clients have been like, '*You want us to critique, you don't just want us to send the cheque*', and then they can tell you what they want, and I think there's a, it shows a willingness to listen because designers are often very self obsessed and they hear the bits they want to hear and they don't hear the bits they don't want to hear and then, if the client doesn't like it then they're not clever enough to understand my creative genius.

Time: 24 minutes 11 seconds

Interviewer: Would you be able to describe what you feel your role is as a designer within the design process? What part do you play?

Mark Delaney:

Time: 24 minutes 25 seconds

[2.8.7] You're often sat between different groups and often you're the only person who can bring all these strands together and bring it into some sort of communicated report.

Time: 25 minutes 19 seconds

[2.8.8] I think the role of a designer is as a communicator right through the design process, then the product you design and release into the world is a communicator of the brand values, it should communicate about its function and all those proper design things.

Interview Template Question Nine and Ten

Time: 28 minutes 08 seconds

Interviewer: What do you feel are the difficulties that designers encounter? What are the design situations that put you in greatest turmoil?

Mark Delaney:

Time: 28 minutes 19 seconds

[2.9/10.1] I think the worst situation to be in is when you're working for a client and you're doing a design, which you think is good, you're really pleased with it and you think it's bang on right and the client just goes, *'I don't like it'*. And then often what you'll find is that the client can't articulate, to you, why they don't like it in anyway that is useful. And that is the worst, I think that's the most stressful situation because when you're placed in that situation, you're like, *'Shit we've got to pull something else out the bag here, and I don't quite know which way to go because I have gone the way I thought was right and now for whatever reason that's wrong and I am trying to balance, like get the client to understand this, but also that I'm open to his suggestions but he can't communicate to me what he wants, he's getting aggressive with me'*, and you just have to, and at times that can get very stressful.

Interview Template Question Eleven

Time: 33 minutes 12 seconds

Interviewer: What role do you feel, while designing, that your emotions play?

Mark Delaney:

Time: 33 minutes 25 seconds

[2.11.1] I guess that the interesting thing about design is you have to be able to turn it on so it's not like an emotional thing so it's not like an artist who might get up in the morning and say I can't paint today.

Time: 33 minutes 45 seconds

[2.11.2] It is a profession it's not an artistic vocation it's a profession so you need to be able to control your emotions you need to be able to channel them, you need to make them work, obviously there are certain projects where you get excited and carried away and you go off down wrong paths, but you need to be able to rein those in and pull them back.

Time: 34 minutes 10 seconds

[2.11.3] Product design is sort of beginning to lack a little bit, it's becoming, in my opinion, too emotion driven there are a lot of people, a lot of designers, who in the magazines, that feel that student work is too much personal expression and emotion and not enough about problem solving and offering better solutions to do things and I am not saying that emotion and all that shouldn't be in product design I just feel it's going too far down the arty route occasionally, for my taste.

Time: 34 minutes 43 seconds

Interviewer: What you said just a second ago was quite interesting about being able to channel those energies, being able to rein them in sometimes if you're getting overly excited about something, is that how you would term their skilful use or could you describe what you consider using them skilfully?

Mark Delaney:

Time: 35 minutes 10 seconds

[2.11.4] Design is quite an emotional act, you are, you do get quite passionate about it and as a designer you need to be quite passionate about solving things and I think that most designers want to do things well, they want to create a better world, they want to do better things, they want stuff to be better, for whatever reason.

Time: 35 minutes 37 seconds

[2.11.5] You can manipulate emotions I think to improve a project you know just by, I think often, one of the things that I do on projects is be briefed quite a long time before you actually have to start doing any work, if I can have a couple of weeks before I start I find I start almost with a reservoir of ideas without even knowing it I don't like being told in the morning, ok design this, you've just got to start because it takes me a couple of days to get going.

Time: 36 minutes 09 seconds

[2.11.6] I also think that boredom can be a useful emotion when you design you're pushing yourself so hard and you're bored and you go off for a cup of coffee and suddenly you'll turn a corner and you'll have found something, that helps.

Time: 36 minutes 25 seconds

[2.11.7] I think designers are inspired by quite negative emotions, you know you're really frustrated with something and you want to design it better, or you're just frustrated with the way things are going and you need to solve it, you cannot let it go until you solve it, you know I think any creative act involves a bit of pain, you've got to give a bit.

Time: 37 minutes 00 seconds

[2.11.8] Often I will find myself really frustrated, you'll find yourself not being able to sleep at night and all of those really crappy things and people tend to think of designers as all sat around drawing boards having a whale of a time, it isn't like that all the time, at times it is, when you do make that break through and you do get it right, it's like 'Yes' and it is a very pleasant feeling. So I think that often the design process can be a real emotional roller coaster ride.

Interview Template Question Twelve

Time: 37 minutes 31 seconds

Interviewer: How would you describe your general condition then, when you feel your working really well?

Mark Delaney:

Time: 37 minutes 45 seconds

[2.12.1] I think there are certain times, you've heard this, critical mass, where lots of things come together and they create more than the sum of their parts. I

think occasionally you get that in a way things just start to click, [...] I think we did at Samsung, Kev involved, where we just reached this critical mass where everything just sort of meshed together and I think that's a really positive experience, that's what sort of gets you up in the morning for the next year.

Time: 38 minutes 30 seconds

[2.12.2] I think when it's going well you've got this, everyone's working hard, everyone is focused and driven and you've got this almost, you've got this tunnel vision of what we've got to do, here's what we've got to achieve, here's when we've got to achieve it by, here's the things we've got to deal with coming in from left and right and you almost get into the zone you sort of, and that's a very positive thing and there [are] times when it's not going so well, when perhaps you've got people on the team who aren't pulling their weight, or just can't pull, or can't do it or can't pull it out of the, and that's, that can be very frustrating and then you find you take on more than you can chew and things don't go so well and designers I think are often very personal about their work so you tend to blame yourself if things aren't going right and then everyone gets frustrated with everyone else and it's quite negative, you know that's the nature of creative work.

Interview Template Question Thirteen

Time: 39 minutes 25 seconds

Interviewer: Throughout the design process or a typical design project there are a number of different activities that you have to undertake, would you be able to describe, or would you be able to give a description of your mind when you're undertaking those tasks and how a different mindset could be different for those tasks?

Mark Delaney:

Time: 39 minutes 55 seconds

[2.13.1] If we start with the briefing, as I said, I like to get some time before the project actually starts just to let it mull around in my head and what I do in that time is sort of like creating a reservoir, you know, I sort of, things will be sparking off, [...] you build up a reservoir of ideas and things and often what I have found is that at that stage you need to get those ideas out and into

something and often they're complete rubbish but often you just need to do them, just to stop thinking about them and stop, because if you haven't done it there's always this niggling things that that was really good that idea.

Time: 41 minutes 00 seconds

[2.13.2] Research process [...] you need to get yourself into this mindset where it's, ok forget all preconceptions, let's see what the market's got to offer and what I can make of this, so you've almost got to switch off your own personal point of view and be like open to what's suggestible, what's suggested.

Time: 41 minutes 50 seconds

[2.13.3] Once we've got all of the research together, you go into this phase there you're trying to make sense of it, you're trying to understand what it means and then you get into quite an analytical point of view where you're trying to analyse all this stuff and the problem, the risk, there is sort of, erm, analysis paralysis [...] that's when I find it really useful to go back to the design stuff you were doing at the start, all the thoughts you had and using this analysis to drive those ideas forward or just discount them and often a lot of sparks fly off at that point and things start to come out.

Time: 43 minutes 32 seconds

[2.13.4] That's sort of a satisfying dotting-the-'i's and crossing-the-'t's sort of a phase, it's quite nice, that's always a enjoyable, I always find that quite an enjoyable phase of the design process just getting the drawing done, getting the model made is always very exciting.

Time: 43 minutes 52 seconds

[2.13.5] Then you go and make the presentation and then you need to get back into '*Ok what do the people in the room want to know*' about rather than me getting obsessed with the design process and the design break through' that I have made here, they don't care they want to know if it's going to sell and why.

Time: 44 minutes 15 seconds

Interviewer: What role do you believe that insights play in design and how do you think an insight is developed or how are the conditions created that allow an insight to manifest?

Mark Delaney:

Time: 45 minutes 07 seconds

[2.13.6] Insights are formed through creative thought, data from one side, you know, just a whole range of inputs, it's being able to pick on a number of disparate inputs and make all the connections, join all those dots and somewhere, things seemingly that aren't related.

Time: 46 minutes 09 seconds

[2.13.7] Being able to pull things together and join dots and I think designers are good at that because they're good at multi tasking a lot of different ideas a lot of different inputs, juggling them up into a bit of a soup and spitting them out into something that looks different.

Interview Template Question Fourteen

Time: 46 minutes 28 seconds

Interviewer: Through out your time in the industry are there any key moments that stand out for you were your ideas about what design is or what your roles is as a design have changed?

Mark Delaney:

Time: 47 minutes 48 seconds

[2.14.1] I've learnt that there's this perception that designers are individuals, you're ego driven and your ideas are the best and you've got to force those through and I don't think that those are particularly appropriate in the modern world and the best designs are going to happen when the egos can be put aside for a while. You do need a certain amount of ego to be a product designer because your job is to get on a say '*Right, this is right because I say so*', but you need to be able to put that ego aside and so it's right for a whole different bunch of factors that aren't driven by my creative genius.

4.2.3 – Case study three

Interviewee: Les Stokes, Co-Founder of London Associates

Date: Wednesday 24th February 2006

Location: London Associates, Berkhamsted

Time: 1029

Interview Template Question One

Time: 00 minutes 19 seconds

Interviewer: My first question is, in your opinion, what do you feel design is?

Les Stokes:

Time: 00 minutes 37 seconds

[3.1.1] The difference between art and design, which are both essentially creative processes, is that design always has to have some context.

Time: 00 minutes 52 seconds

[3.1.2] My definition, if you're talking about art you're talking about something, which can be completely selfish, completely self centred and doesn't necessarily need any sort of context where as design, good design always has to occur within a context so tends to be, you know tends to be a conscious, a conscious decision making process which is, which is always in some form of context.

Time: 01 minutes 27 seconds

[3.1.3] That's not to say it's a completely objective process because I don't believe for one minute it is, it's a mixture of objective logical thought processes and completely, almost unconscious, subjective sort of decision-making.

Time: 02 minutes 27 seconds

[3.1.4] It's also about problem solving but I think it's essentially the ability to work creatively within a specified context.

Interview Template Question Two

Time: 02 minutes 40 seconds

Interviewer: What do you believe, in the broadest sense, design is for, why do we design?

Les Stokes:

Time: 02 minutes 58 seconds

[3.2.1] There was never any doubt in my mind I don't think from as far back as I remember that I actually wanted to design things and I can't pretend in those

days it was anything to do with the greater good of mankind it was actually more of a, more of a feeling really.

Time: 03 minutes 32 seconds

[3.2.2] I mean product designers were always the people when they were young who were taking their toys apart, always wanted to know how things worked so I think a designer is always going to be a person with a really enquiring mind, is one of those people who's just not prepared to be told, *'Well it works so don't worry about it'*.

Time: 04 minutes 35 seconds

[3.2.3] I suppose there is an element of that in it, there's an element of mending things and making them better.

Time: 05 minutes 09 seconds

[3.2.4] Most good designers do sort of meet a stereotypical description and so I think it is actually something that comes from within rather than anything external and I don't honestly believe you can train somebody who didn't have those fundamental attitudes, feelings, emotions to be a designer.

Time: 05 minutes 42 seconds

[3.2.5] There is something about good designers that basically differentiates them and I've always maintained that you know in a sense that one of the reasons that the design profession has never been particularly proactive, useful as a profession of people is because people come into it because of certain requirements for themselves that actually get met when they start being a designer but that's very different to some of the other professions I think where they're always driven, they're profession driven, I think design, designers are actually internally driven and on that basis on business terms are in danger of being their own worst enemies really.

Interview Template Question Seven

Time: 06 minutes 35 seconds

Interviewer: Could you describe what some of those internal drivers are? What are the things that turn a person into a designer?

Les Stokes:

Time: 06 minutes 44 seconds

[3.7.1] Certainly there's a element of problem solving, there's no two ways about it, problem solving is part of the experience and not necessarily seeing problems as problems, it's an ability to see a problem as a challenge rather than a problem as a problem, so I think good designers are the people who see opportunities in problems and that's a fundamental differentiator.

Time: 07 minutes 16 seconds

[3.7.2] Where some people would only go so far and go away crying with their tail between their legs I mean most good designers just, just carry on. I think there is certainly an element of that, there is, and out of that comes a requirement to be creative in some shape or form.

Time: 08 minutes 00 seconds

[3.7.3] I think probably the difference between a designer and let's say a creative lawyer is that the designer requires actually something tangible to come out of the process as opposed to maybe a lawyer doesn't actually need anything in their hand so there's an element of touchy feely involved in it.

Time: 08 minutes 00 seconds

[3.7.4] I mean these are very interesting questions I don't think I have actually been asked that before.

Time: 08 minutes 38 seconds

Interviewer: Are there any other qualities that you feel a designer should have?

Les Stokes:

Time: 08 minutes 44 seconds

[3.7.5] Energy, huge amounts of energy, drive, an ability to not get over tired...

Interviewer: There seems to be a theme there!

Les Stokes:

Ha-ha, yeah, a sense of humour I think is almost essential. I'm not making this all sound positive am I!

Time: 09 minutes 35 seconds

[3.7.6] There is a quality that good designers have that I, that you do see missing in other careers I think, it's probably best described as being able to think very, very broadly almost globally and then suddenly being able to snap out of that and think on a very, very detailed level and then being able to snap

again to think broadly and I think that's, I wouldn't say it was unique to the design profession but I would certainly say it was unusual because something that, it's almost like, I don't know, like design Olympics. If you are a designer and you do it for many years you take that ability for granted and sometimes you can be surprised when you don't see that ability in other people.

Time: 10 minutes 52 seconds

[3.7.7] I once heard it described and I think a good description is almost like looking down one end of a telescope and then you reverse it and reverse it back and then reverse it and you've got it, it is mental gymnastics it's that ability and that is the biggest differentiator on a practical level, that's the biggest differentia between an okay designer and a really good designer, that ability, because some people still, even designers tend to go down the detail route and find it difficult to see there way out of it, whereas you've got to be able to keep changing that view point.

Interview Template Question Two (cont.)

Time: 11 minutes 37 seconds

Interviewer: Who does design benefit?

Les Stokes:

Time: 12 minutes 33 seconds

[3.2.6] There has to be a difference between just design for designs sake and good design. I mean good design should certainly, should certainly make, improve people's lives, I mean it should make them happy, it should make them have a warm feeling, it should bring joy to their life, it should bring emotional experiences. The trouble is that most people only ever understand bad design because, if they actually, if they're using, and again I am talking about products because I am a product designer, but if they use a product and it bites them they'll know all about it, but sometimes the best design is actually relatively quiet and works on some interesting emotional levels which aren't necessarily singing and dancing, screaming and shouting, it's actually quite quiet, almost gentle and peaceful and well appreciated but it's the bad design which people react more strongly to in a lot of situations.

Time: 13 minutes 45 seconds

Interviewer: Do you ever feel, or have you ever thought that good design can have any disadvantages or can anyone be disadvantaged by good design?

Les Stokes:

Time: 14 minutes 46 seconds

[3.2.7] You are much more likely to appreciate good design in a world of bad design than you are within a world of good design because somebody's just shifted the, they've moved the base line up, I don't know, I mean can we imagine a world where everything was utterly brilliant design!! I mean who would we complain to! How would we deal with the other bits of emotional requirement, which is complaining and grumbling? I don't know but that's the only down side I could actually see to be honest.

Interview Template Question Three

Time: 15 minutes 33 seconds

Interviewer: What motivates you? What are your motivations within design, or within the profession?

Les Stokes:

Time: 15 minutes 53 seconds

[3.3.1] I actually get bored quite easily and if for me coming to work everyday was the same and the same set of challenges everyday I would have given up years ago. I actually require new challenges, and you could argue that sort of design whether you like it or not design certainly brings you that in every shape and form because as you would understand we never know from one day to the next what the day is going to bring we never ever know when the telephone rings whether or not you need to be persuading someone that, that their products need re-designing, you never know if you're going to be dealing with an irate client so there's a challenging aspect.

Time: 16 minutes 57 seconds

[3.3.2] When you're a young designer I mean the thing that motivates you is, really is the first project you're working on so every single project you work on is precious, I mean too precious from my perspective, I mean you go through a

period and when you've done your first twenty products and they're all in production and you then start to look possibly for other challenges.

Time: 17 minutes 33 seconds

[3.3.3] [When] I first started being an industrial designer [...], we worked for big companies, I came up with ideas, I sold ideas essentially, I then spent probably the next year talking to draftsmen in a big drawing office and so that was a challenge and so the next move is you start to understand some of these principles of construction, properly making things so you learn about, you learn about assembly you learn about manufacturing and in the end you get very, very good at that and so that gets a bit boring and so, certainly as far as this company is concerned we started to get interested in thinking much more on the marketing level, things that relate to brand so you have to learn about that. What we have been doing recently is moving even further forward in the design process, a lot of the work we do now is actually research-based work related to looking for product opportunities for companies, so it's like I suppose you're always re-inventing and I think that's really that's the only reason I'm still doing it, I couldn't have spend all that time just doing ideas, there's a limit.

Time: 19 minutes 08 seconds

[3.3.4] It is the same attitude that leads you into being a designer that actually keeps you being a designer a constantly looking for new problems.

Time: 19 minutes 23 seconds

[3.3.5] So the problems aren't the functional problems or visual problems of the product you're designing that then changed to almost the services you're providing, so I guess it's the same person just externalising those fundamental requirements in slightly different ways, I don't know where it ends, I don't know, I'm not sure exactly what happens, I don't know if it carries on forever or if one day you wake up and go, '*I'm bored*' and go and do something else.

Time: 20 minutes 10 seconds

[3.3.6] I think in a way, some aspects of the whole design world are probably as interesting as they have ever been, and I do look forward mildly optimistically to designers being treated as intelligent thinking people rather than just as blacksmiths.

Interview Template Question Five

Time: 22 minutes 50 seconds

Interviewer: How do you judge the quality of a design project?

[No data sections deemed relevant to the units of analysis]

Interview Template Question Three (cont.)

Time: 24 minutes 17 seconds

Interviewer: So what is it that makes those projects enjoyable, what are the aspects of the project or the people you're working with or of the nature of the challenge?

Les Stokes:

Time: 24 minutes 28 seconds

[3.3.7] I think very often they are what you would describe as sort of ground breaking projects they are the projects where you are probably starting with a blank sheet of paper, the projects where even the client doesn't really know what they want or projects where you are dealing with extraordinarily clever technology that has never been packaged before so you don't even, so there's no, unprecedented products, products that aren't evolutionary at all they're completely revolutionary so you're getting into really interesting areas about what people want, what people need as opposed to just another kettle or just another television.

Time: 26 minutes 20 seconds

[3.3.8] The ones that give you the most pleasure are the ones that are most difficult that's probably the honest answer really, they're very, very difficult they're very challenging and if you get it wrong boy are you going to get it wrong, they're dangerous, I guess it's the dangerous ones that give you more satisfaction.

Time: 27 minutes 25 seconds

[3.3.9] What you have done is create something that nobody has created before that's the essential, that's the essential criteria really and they're not all like that unfortunately.

Interview Template Question Six

Time: 27 minutes 42 seconds

Interviewer: And how do you judge the quality of your personal involvement within a project? When you look back how do you judge, how do you know if you've done a good job or not?

[No data sections deemed relevant to the units of analysis]

Interview Template Question Eight

Time: 31 minutes 29 seconds

Interviewer: Ok, how do you believe that people develop their design practice? What were the things that you have done to develop your practice as you have developed throughout your career?

Les Stokes:

Time: 32 minutes 46 seconds

[3.8.1] If you did nothing else but think of the future I mean I think that would be easier, or if you did nothing else but worry about tolerances on mouldings but when you're trying to do both that is an example of design thinking really or the innate ability of good designers can actually do that without you know, without getting to much of a headache.

Interview Template Question Nine

Time: 33 minutes 15 seconds

Interviewer: What are the difficulties that designers encounter, I mean obviously there is the flipping you've just been describing, are there any other typical difficulties that designers encounter?

Les Stokes:

Time: 37 minutes 35 seconds

[3.8.2] We don't have one person here who has only got one project in their head, they've all got different projects and they're all at different stages and they've got to be able to immediately access that project in their mind and run with it that's part of our criteria for the people who are actually going to enjoy working here and it's quite tough I think.

Time: 38 minutes 16 seconds

Interviewer: When do you feel dissatisfaction? Are there any times or any typical things that cause you to feel dissatisfaction?

Les Stokes:

Time: 39 minutes 07 seconds

[3.8.3] [There was a time when] we were actually having to paper over cracks in a lot of situations and spend a lot more time on things than we were being paid for basically just to ensure that the project didn't go pair shaped, we were covering other people and when you get no thanks from it because the people that you're dealing with don't even understand what you're doing for them because to do that you have to be experienced enough, it's a vicious circle, I mean, yeah, very dissatisfied in some situations.

Time: 39 minutes 39 seconds

Interviewer: And how did you feel you dealt with that?

Les Stokes:

Time: 40 minutes 37 seconds

[3.8.4] It's a problem isn't it; I mean you're a designer. I think the other thing about designers is that you actually have a loyalty to this product that you're designing, it is a thing, it is a person, it has a personality it, and I mean in some situations you just say, '*Well if I walk away from this I am abandoning my baby*', so you have to, in some situations, just bite your tongue and just get on with it for the sake of this, this, this, I mean the emotions bubble with products, I mean whether that's a good thing or a bad thing you know is probably a debateable point but I think it happens, well in fact I know it happens.

Time: 41 minutes 13 seconds

Interviewer: When during a day, or do you ever feel agitated or restless? What are the circumstances that lead you to feel like that?

Les Stokes:

Time: 41 minutes 34 seconds

[3.8.5] I guess it's really when the number of things you are actively trying to move forward actually get to the point where you know damn well that you are now, you have gone over a point where, that can actually happen and then you have to start prioritising as to what you're going to deal with and what you're not going to deal with and then you start thinking '*Well actually am I going to be letting someone down if I don't do that*', it's that sort of stuff really.

Interview Template Question Twelve

Time: 43 minutes 40 seconds

Interviewer: How would you describe your general condition when you feel you're working really well?

Les Stokes:

Time: 43 minutes 49 seconds

[3.12.1] Buzzing I guess, elation. When it clicks in and you know it's clicking and you know you're doing an extremely good job there's a real buzz.

Time: 44 minutes 02 seconds

Interviewer: Is there anything about the way you are in those situations that because you are that way it almost helps the work that you're doing?

Les Stokes:

Time: 44 minutes 17 seconds

[3.12.2] We are a group of people and you can see if someone is in control and happy then that is very good and has a very positive impact on other people in the team as opposed to someone who has got their head in their hands and is crying in their office, not terribly motivational.

Interview Template Question Eleven

Time: 45 minutes 40 seconds

Interviewer: What role do you feel your emotions play when designing, you said there is a lot of emotional involvement and investment do you feel that your emotions have any other roles while you undertaking design activities?

Les Stokes:

Time: 47 minutes 37 seconds

[3.11.1] I don't actually suffer fools very well either and people know that if they're talking to me, they will get the message because I find it almost impossible to control some of those emotions I guess.

Interview Template Question Thirteen

Time: 48 minutes 01 second

Interviewer: You mentioned earlier some of the different activities, the mental gymnastics that designers have to undertake, I was wondering if you could go into a little more detail about those mental activities and how they differ? The different activities that a designer has to undertake, what are the mental qualities that really aid and help those particular activities?

Les Stokes:

Time: 48 minutes 50 seconds

[3.13.1] I have noticed some rather bizarre behavioural things in the past, it's quite interesting and it drives my wife up the wall, simple things really and this begins to sound a bit creepy really or irrational behaviour but I, if I, if I was to go shopping which is supposed to be a completely joyous experience I tend to be thinking as if I was planning a project so I am, and it's not even on a conscious level but it's happening in my head and I can't stop it, which will be, we need to go there first, we'll do that and if we do that in that order then we will actually complete this activity much faster than if we just followed your bizarre meanderings and I can't snap out of it and it's because I always have to be thinking in a sense what is the most efficient way of getting from A to B and there are some things that you certainly don't leave in the office some of which are possibly not that good if you're sharing with other people.

Time: 51 minutes 01 second

[3.13.2] I am not suggesting that that is necessarily good or even positive but they are the qualities that you invariably develop that you can't necessarily shake off even if you want to so they become part of you and in which case

they actually, they actually sometimes, it becomes quite difficult to analyse them because they're just there really.

Time: 53 minutes 01 second

[3.13.3] I mean I am very intuitive at this moment in time and now I am being incredible rational. I make very intuitive decisions and then I make a very rational case afterwards for making that decision but I mean half the stuff I do is completely subjective followed up with argument after the event.

2.2.4 – Case study four

Adrian Stokes has edited his verbatim interview transcript. Appendix A contains this edited document. The data sections presented as case study four are derived from this edited document. As such the coded data sections cannot be time coded. The time codes for the interview questions have been left to provide the reader with an indication of the time context of the interview.

Interviewee: Adrian Stokes, founder of asa Designers

Date: Friday 3rd March 2006

Location: ASA Design Associates, Kingston

Time: 1409

Interview Template Question One

Time: 00 minutes 06 seconds

Interviewer: My first question is, what in your opinion is design?

Adrian:

[4.1.1] I consider my role is to represent the person who uses the product I design and to make their lives better. We're working for our clients and we have a responsibility to them, but if we do the job well on behalf of the end users, then the client will benefit because people will buy it. It's a paradox; on the one hand designers are quite idealistic but on the other, it's a commercial activity. If products don't sell our client risks being out of business; there are many elements in the creation of a successful product.

Interview Template Question Two

Time: 01 minutes 43 seconds

Interviewer: That's great thank you, so in that case what you believe it's for, what is the purpose of design?

Adrian:

[4.2.1] The purpose of industrial design is to improve the lot of the enduser practically and spiritually, if we do our job the client benefits; people buy their product and they are successful.

Time: 03 minutes 55 seconds

Interviewer: Do you think there is ever anybody who disadvantages from design?

Adrian:

[4.2.2] Phew. The world is disadvantaged because we design too much that is both unnecessary and poor quality. Replacing rather than repairing effectively dupes people into buying things they don't really need and is utterly unsustainable.

Time: 04 minutes 56 seconds

Interviewer: That is interesting. What do you believe is going to be the future direction for design, could you elaborate on that a little?

Adrian:

[4.2.3] Products are cynically designed to be updated and replaced not repaired. This feeds our worst instincts and makes us all victims of the very corporations who claim to design products under the banner of "service and the customer experience".

[4.2.4] The reality is that the industrial designer came into being to "service" the needs of "the customer", but the role has been cynically skewed to have a different emphasis and one that in fact is focussed on the needs of the company not the customer; servicing volume and obsolescence.

Interview Template Question Three

Time: 11 minutes 12 seconds

Interviewer: Is that one of your main motivations within design, looking at those issues and how we respond or do you have other motivations?

Adrian:

[4.3.1] My motivation is the sheer enjoyment of what I do; which may seem selfish but it has a moral, idealistic dimension. I consider my client to be the end-user not the person who pays my bills. I work very hard and I always have done on their behalf.

[4.3.2] I am extremely concerned about the future of our society, the lifestyle that we enjoy in the West and the awful effects that we have had on the lifestyles of others elsewhere in the world and the environment we and they have to live in. We live in a dangerous time, I am exercised and motivated by this undercurrent, but as a designer I don't have the opportunity to instigate the changes necessary, all I can do is talk, express a point of view in articles that I write and work hard on behalf of the people I design for. They are my prime concern and at that level I remain very motivated because I love what I do. Beyond that I remain very scared.

Time: 13 minutes 02 seconds

Interviewer: So what are the particular enjoyments and pleasures that you get out of design then? Where is that love for it?

Adrian:

[4.3.3] It's just the moment really, for me the drug of design is when ideas pop out of nowhere.

[4.3.4] As a student you have no self-confidence, in fact, when you have been practicing for 30 years you still haven't, but you learn that under certain conditions something will happen and when it does it's life enhancing. '*Where did that come from*'? Creative people talk about that moment and it's a fact.

[4.3.5] Subsequently there is a huge amount of worry to turn that moment into a finished product. Without that moment there would be no successful products and without that worry there would be no successful products.

[4.3.6] There are all these opportunities to ruin that moment but when people use the product you have designed and acknowledge that it is better than the one they had before that is very rewarding.

[4.3.8] It's that moment where the greatest pleasure lies. Seeing it realised, acknowledging you've done the best you possible can and people benefiting comes a close second.

Interview Template Question Five

Time: 15 minutes 13 seconds

Interviewer: Are there some of the criteria by which you would judge the quality of a project? Or do you have other sets of criteria?

[No data sections deemed relevant to the units of analysis]

Interview Template Question 13

Time: 18.01

Interviewer: One of the things you mentioned before was putting yourself in a or learning to have the confidence to put yourself in a particular position where something is likely to happen could you describe what you meant by that?

Adrian:

[4.13.1] I found it very difficult the first couple of years I was at college. I just felt that we had to be taught things, that design would be a question of us learning enough information to solve a problem in a very methodical way. When I was a student I regularly used to drive up and down the motorway to visit relatives. At the end of my second year, on one of these journeys, I was thinking about a project we'd been set and the whole solution just came to me 'Whoosh', it really sounds corny, and from then on, in fact up until I had been practicing for about four or five years, at the beginning of a project, I would get

into my car and drive around, preferable on a motorway. I was able to recreate the conditions and repeat the moment. When it happened, I would stop, record it in my sketchbook and carry on. When enough had happened I would go back to the studio and start working around those thoughts. Over the years I grew to rely on motorways less and myself more.

[4.13.2] It would be a really nervous process, I really felt scared by the project and could spend quite a lot of time going through the motions just filling sketch pads and being fairly uninspired.

[4.13.3] I believe strongly in talent and intuition, there are many technicians, but the designers I have most admired tend to work in a much more instinctive way.

Interview Template Question Six

Time: 21 minutes 30 seconds

Interviewer: That's very interesting thank you, how do you judge the quality of your own involvement in a particular project, how when you look back do you think that was a good job?

Adrian:

[4.6.1] Having started my own practice I found myself increasingly working through people, using them, not as a tool exactly, but you're trying to nurture the answers from them and actually, I found that I was unhappy with the work we were doing and the service we were providing.

[4.6.2] For me to be happy, required that I was a designer 100% of the time, I didn't want to employ a team or work through people just to interact with my clients and make my own decisions without compromise.

[4.6.3] I have a CAD engineer and an administrator. I interact with the clients directly and love it. In the past the pressure of time and the relationships with my staff meant that I had to accept compromise for them to develop. I believe

it's common to many, principals of design studios; they want to be designers and are unhappy but just accept that is the price of growth.

Interview Template Question Seven

Time: 24 minutes 27 seconds

Interviewer: What would be your definition, or how would you describe a good designer?

Adrian:

[4.7.1] A good designer isn't a specialist, but is somebody who is just interested, intuitive, never satisfied, innately curious, and always striving trying to find a better way.

[4.7.2] I have employed some really excellent people from the Royal College, Newcastle, Kingston, Ravensbourne etc and I can think of only a few who have developed and become inspiring individuals in their own right. The rest became smug and complacent or stalled.

[4.7.3] I'm not saying it's a good quality to have, but my observation is that good designers are never happy they're never satisfied, never content.

[4.7.4] The art and craft of design is still dependent upon being able to draw, make, use computers, coupled to an extensive library of practical and cultural know how. Interaction with others can turn good into great; it helps if you're curious about other peoples' points of view and willing to listen. So the ability to work with others in an open handed and open minded way is another essential, as is trust in your own judgement.

Interview Template Question Eight

Time: 30 minutes 26 seconds

Interviewer: How do you improve and develop you own design practice?

Adrian:

[4.8.1] My external examiner at college was the head of a very large design practice and while most would have found it to be idyllic working in a Georgian mansion in the centre of Warwick surrounded by many clever people, I felt very quickly that it was process driven and less concerned with creativity & quality than getting the work out of the door and billed.

[4.8.2] Design at Fether & Partners was just so different to the practice of design at DCA. It was uncompromising and practiced in an environment that was supportive and very informed both culturally and technically, a small team of excellent individuals working co-operatively together in order to generate the very best solutions. I felt then and still do today that there is an optimum size for a design studio and that the best relationships require a very close interaction between the client and the designer and at the highest possible level.

[4.8.3] In 2002 I decided to reorganise again and now work with a very small team and work directly with my clients having learnt to use the tools and determined that I would never expand again. I have a brilliant CAD engineer, and administrator and take short-term student placements. After a career long search this is as perfect as it gets in my opinion.

[4.8.4] I'm convinced designers are solitary individuals, like writers and artists. We need interaction and endorsement but on our terms. Working in contrived teams is inefficient and frustrating and whilst I do believe there are benefits in sharing thoughts and ideas with like-minded individuals, there are huge compromises in creating design businesses based on traditional business/company models.

Interview Template Question Nine

Time: 39 minutes 40 seconds

Interviewer: What are the difficulties that designers encounter?

Adrian:

[4.9.1] I think the best guidance I could give is to be happy. If instinctively you don't feel at ease then everything else will be hard work. The mere act of

turning up to an office to work in an environment when you're not happy is soul destroying; once in that position it can be impossibly difficult to extricate yourself, the costs to you and others becomes too great. Designers require a high degree of inner peace and I spent many unhappy years grappling with the problems I had created or allowed to arise.

[4.9.2] In your first job you will be working under someone else's rules. In your own studio the choices will be yours but making the correct decisions, for your success and health is not easy. There is a conflict between what you enjoy doing and what you have to do.

[4.9.3] It becomes a case of swallowing hard and doing the best you possibly can, striving and hopefully creating the circumstances that put you in a frame of mind that allows you to do good work, which is all most designers really want the opportunity to do.

Time: 44 minutes 03 seconds

Interviewer: And what you do believe that right frame of mind is? You have alluded but could you describe what that right frame of mind is?

Adrian:

[4.9.4] Being in an environment and working in a way which allows your innate enthusiasm and love for what you do, find its feet. Designers are enthusiasts with a vocation.

Time: 44.48

Interviewer: Are there any times during the day when you feel particularly restless or agitated?

Adrian:

[4.9.5] I am quite excitable and I use exercise and the discipline it requires, to help bring everything into perspective and more able to cope. Every morning before I start work I run or go to the gym and in the evening, walk. Without this outlet then I can become pole-axed into anxiety induced inertia.

Interview Template Question Eleven

Time: 46 minutes 38 seconds

Interviewer: That's a great description, thank you. What role do you feel your emotions play while designing?

Adrian:

[4.11.1] Emotions, I would say they are a huge factor. The feeling of moving things on, making the simplest decision about a detail which just makes sense; that moment can lift me through the next three or four hours of numb average-ness, it can make me believe in myself which is terribly important.

[4.11.2] It's amazing how confidence can desert you; emotions are very fickle, lifting your mood sky high or just shutting you down. At those moments you never look at the bigger picture, 30 years of achievement for example, you always just think, *'Oh god I'm in trouble'*.

Interviewer: You obviously recognise when you have mental paralysis, what do you do to deal with that?

Adrian:

[4.11.3] I take myself off, phone a friend, walk; that is the beauty of working as I do now. I don't feel any guilt at being outside my own office or talking to a friend for an hour. I don't feel that I have to be here, although I generally am. I have an in-built work ethic, but in those moments I do what I have learnt I need to do to, get going again. I can be working on a number of projects at any one time so I can move around. A blockage in one area can be freed by doing something more mundane in another. It's a version of motorway driving again; putting yourself in the place you've learnt helps.

Interview Template Question Twelve

Time: 50 minutes 10 seconds

Interviewer: That's interesting. I think you have answered this a number of times already but I will ask the question anyway, how would you describe your general condition when you feel your working really well, at your optimum if you like?

Adrian:

[4.12.1] High as a kite! In fact that I feel I can turn my mind to anything and a solution will present it self. At the best times I'll get up and mess around, make tea, just prolong the moment and try to share it with anyone in my proximity. It is really uplifting, corny as it sounds. I get interested, really interested and engaged with what I am doing. When those factors come into play then generally things happen and I am really happy when they do.

Interview Template Question Thirteen (cont.)

Time: 51 minutes 08 seconds

Interviewer: Do some of the different activities you undertake during design activities; do they require different mental attitudes or different mental qualities?

Adrian:

[4.13.4] I'm fairly obsessive about everything. I will bother about the position of a stamp on an envelope I will make sure the typing sits in the right position on the envelope. It is an attitude that is ever present in my design work I'll tinker forever.

[4.13.5] It is also a factor that looking back on my experience as an employer became a source of disappointment and anger; for the first 18 years I think I ran my business for my staff. I tried to create as good a working environment as I possibly could for the people I employed. I wanted them to feel respected, to have responsibility, look at the whole picture, learn from that and reciprocate.

[4.13.6] Unfortunately with a few exceptions, that wasn't the case. They became complacent, lazy designers and lazy people who took things for granted and were more interested in going out to the pub at 5.30 than they were about their work and the world around them. I became a disillusioned nursemaid.

[4.13.7] When people come through the door of my studio, it doesn't have to be pristine, but I like to think they leave with the impression we care. The sum total of little lapses can be symptomatic of a bigger problem and I am obsessively concerned about the impression we create and the quality of anything that goes out of my office; I just like it to be right and I enjoy it when it is. When others don't share that concern, especially when you've worked hard to create the platform for them, it can be soul destroying.

[4.13.8] So in answer to your question in design and the business of design there is a common thread of concern that should inform everything.

Interview Template Question Seven (cont.)

Time: 53 minutes 58 seconds

Interviewer: Do you think that being involved in design or through the personal characteristics that brought you into being a designer that you look at the world or experience it differently to other people?

Adrian:

[4.7.5] I got immense pleasure out of building and making stuff. Incredible dens, things that I was certain would fly, a fantasy life grounded by a love of hard, grafting work. That's the case to this day it's just another version of what I do now and the satisfaction I gained from it is no different.

[4.7.6] I don't think I'm unique, I would say that the designers I most admire, most have the same curiosity and diversity in their lives and it is that which provides the foundation or vocabulary that informs their work.

Interview Template Question Fourteen

Time: 58 minutes 51 seconds

Interviewer: And my final question is, are there any key moments during your life or career where you feel that your perspective or understanding of design has changed the way that you either do design or think about what design is?

Adrian:

[4.14.1] He made me realise that you didn't have to be a cruel to be successful and there's a much wider world than the blinkered world of design events in the company of other designers. He also changed me from a talented inventor, into an industrial designer able to refine and redirect raw thoughts into refined and inventive finished products that were conceived and developed on behalf of an enduser not just my own ego.

[4.14.2] I was given a book by JI on the subject; I browsed it, but it wasn't for me; having said that faith clearly offers him something very important in his pressured world. There are clearly other states of mind that allow design ideas to arrive fully formed without any conscious input. That you can learn to develop frames of mind which encourage completely unpredictable ideas to emerge has always been a concern/ interest.

[4.14.3] I did know a model maker, an ex RCA designer who had some difficulties and used meditation to, as he put it, switch into another frame of mind very quickly when he ever felt unacceptably stressed. I loved the idea that this was possible and that his altered state could be entered into so straight forwardly.

4.2.5 – Case study five

Interviewee: Steven Kyffin, Global Director, Philips Design Research

Date: Wednesday 30th March 2006

Location: Centre for Design Research, Newcastle

Time: 1142

Interview Template Question One

Time: 00 minutes 10 seconds

Interviewer: What is design?

Steven Kyffin:

Time: 00 minutes 42 seconds

[5.1.1] At one level it's architecture, which is an overall holistic framework for building the constructed world.

Time: 00 minutes 57 seconds

[5.1.2] To design is the mechanism that human beings have developed in all their different cultures and timeframes to help make those decisions to create a world that reflects us and supports us and enables us to transform ourselves and support our needs at all levels.

Time: 01 minutes 23 seconds

[5.1.3] Design as we understand it, or as I understand it, reflects a certain amount of cultural sensitivity and cultural expression, humaneness, humanity over and above while also reflecting or responding to the functional needs of something we make whether it's a building or an electric drill or this microphone so that it has a relevance and signifies something of our humanity through it, then it is, then it has design in it rather than solving the problem at a functional level.

Time: 02 minutes 59 seconds

[5.1.4] What we mean by design today is a fight against purely intuitive craft, a fight against purely modernistic Teutonic engineering of form and function and minimalism and placing us in a machine age world. So the artistry of our cultural expression can be in and live over all those things.

Time: 04 minutes 45 seconds

[5.1.5] So design for us, the visual language people, amalgamates, integrates cultural expression through sounds, through form, through poetry, through sculpture, through commerce, through different forms of technological progression into the public space not into the private space. It has to be publicly understood, universally.

Time: 05 minutes 22 seconds

[5.1.6] The processes, the creative processes of a designer are entirely private and are nobody else's business except when you have to make money out of it then it has to be repeatable, but basically your creative process is yours the output is theirs.

Interview Template Question Two

Time: 05 minutes 35 seconds

Interviewer: So what do you believe design is for in that case?

Steven Kyffin:

Time: 05 minutes 39 seconds

[5.2.1] The purpose of it; to enrich and build our civilisation. It's a building civilisation tool mechanism.

Time: 05 minutes 47 seconds

[5.2.2] We're designing life.

Time: 05 minutes 52 seconds

Interviewer: Does it always benefit everybody then, or are there certain people who are benefited by the act of design and certain people who aren't?

Steven Kyffin:

Time: 06 minutes 00 seconds

[5.2.3] Well, it depends how conscious the people are, everything affects everybody eventually at one level or another, whether you notice it, whether you value the affect is a completely different issue.

Time: 06 minutes 15 seconds

[5.2.4] So even at the most prosaic level or banal level, the work of Alessi, Alberto Alessi in the 80's by trying to ask artists to speak into the everyday world of the hotel cutlery, has actually changed what happens in Wal-Mart or what happens in Boots or what happened in Philips.

Time: 06 minutes 57 seconds

[5.2.5] It is for and does touch everybody, just like art does it affects us all whether people are sensitive to it is a completely different issue. Whether people notice that it's touching them.

Time: 07 minutes 17 seconds

[5.2.6] And it should touch them because most the things we make insult humanity it makes life more complicated rather than less it makes you a slave to the things we make rather than them being a slave to us and by slave I mean in inverted commas 'servant'.

Time: 07 minutes 38 seconds

Interviewer: Could you go into that a little bit more what do you mean by that?

Steven Kyffin:

Time: 07 minutes 41 seconds

[5.2.7] We create things in our image, which are representative of us as extensions of us, as prosthetics of our own thought processes or physical [processes], so everything is a, it means we can drill a hole or we can talk to someone over long distances, or we can do something or we can be something the problem with them is that we become victims of it in the end in a Shelly sort of way creating the Frankenstein we become a victim of them. They end up determining how we work and how we live and what we do, so we become a victim, or we come under the control of the things we created, they start biting back, not consciously of course as they don't have any consciousness, we become subject to their control.

Time: 08 minutes 28 seconds

Interviewer: So what is happening there, why does that happen? How do you understand that?

Steven Kyffin:

Time: 08 minutes 45 seconds

[5.2.8] I know that we're not perfect and the things we make aren't perfect that's why we end up subject to their imperfection because we're not conscious enough to transcend our actual intentions.

Time: 08 minutes 56 seconds

Interviewer: So do you think it's our ability to create the object or our ability to understand those objects. The thing that means that products bite back, does that reside with the product or with the person?

Steven Kyffin:

Time: 09 minutes 30 seconds

[5.2.9] The thing has no responsibility, only we have responsibility and the issue is whether we have reaction, in other words whether we don't respond but just react unconsciously and unintelligently or whether or can respond and create responsibly and of course we can't because we can't know the effects of

all our actions or the consequences we cannot know them because we're creating into our own space. We just don't think enough about it. For long enough, always.

Time: 10 minutes 00 seconds

Interviewer: Do you think there is something that can be done there, I mean we don't think long enough about them always, is there something, from your perspective as a designer who puts these objects out into the world that can have some influence on those interactions or do you think it's with the awareness of people in general?

Steven Kyffin:

Time: 10 minutes 29 seconds

[5.2.10] There has always been a very big paradox between understanding what I do as a designer as a proposer, as a creator, and what other people do as a receiver, can I be responsibly for what other people do as I consequence of who I am, no. Can I be responsible for minimising the effect I have on others? Yes! I think.

Interview Template Question Four

Time: 15 minutes 04 seconds

Interviewer: So in your process and in your view what are the things about you that at least allow you to have that debate? What are the things about you that are driving, influencing the way that you approach your work today?

Steven Kyffin:

Time: 15 minutes 30 seconds

[5.4.1] Well I am not actually designing or making propositions personally, I do it as part of a team so you have to [think about], the company, the group, the collective I work within. But me personally and how I deal with the propositions that I make whether it is managerially or programme wise are my values, my operating values, my life values and my level of integrity in living out those values.

Time: 16 minutes 02 seconds

Interviewer: What sort of values are they?

Steven Kyffin:

Time: 16 minutes 07 seconds

[5.4.2] I don't push myself to make me more important than those around me; that I will not always force myself to take the lead; that I will allow other people to speak into my life rather than knowing what is right all the time.

Time: 16 minutes 30 seconds

[5.4.3] I will try to build unity in debate, not sameness, not a sense of collective understanding, to build peace so that there isn't a continual fight between us and them and me having the power and you not having the power and me being able to tell you what is good for you or right for you or what you will have because I can exploit your weaknesses.

Time: 17 minutes 08 seconds

[5.4.4] I am happy to change my mind; that I am not out for personal gain.

Time: 17 minutes 15 seconds

[5.4.5] I am other centred rather than self-centred.

Time: 17 minutes 30 seconds

[5.4.6] I try to think ahead so that I respond I don't react, a knee jerk reaction, by intention of course every so often, probably even every day, you get caught out because your instinct takes over.

Time: 17 minutes 56 seconds

[5.4.7] I try to be aware of my human instincts and manage over them, I know that your instincts are that you want control, that you want power, that you're in charge, self protection, these are all cultural instincts, which people value these days but counter-culture is to say *'Yes you can attack me, yes you can put me down, yes I won't built factions, yes I won't go for the individual, yes I will go for the collective, yes I will go for slower growth if it means we all go there, yes I won't go for point leadership but I will go for enabling'*.

Interview Template Question Three

Time: 19 minutes 25 seconds

Interviewer: So what motivates you professional now?

Time: 19 minutes 27 seconds

Steven Kyffin: Other people's growth.

Time: 19 minutes 52 seconds

Interviewer: How has your motivation changed throughout your career?

Steven Kyffin:

Time: 20 minutes 08 seconds

[5.3.1] It's changed from being discipline centred, which is: I want to design beautiful things for people to enjoy and therefore to help companies to make more money by improving them technologically, humanly, ergonomically, culturally and aesthetically because design says you should be able to do that, the motivation for that at the time was core modernism because it would make more money, because people would be seduced by those qualities and therefore buy more of the stuff because it was better than other versions but even all that being true. All that is still true and we do create wealth by it and we do create better quality of life because of it, but I did it because of the discipline and because that is what I was trained to do, that was my level of consciousness, now I do it because I am 25 years older and I notice that it touches every part of my life and the world isn't just about the design discipline it's about everything simultaneously and I think it may be patronising to say it in anybody else's context but it's also, it's just about growing up, it's about maturation, of being a human being and realising that in our own time/space world very few people rely on certainty and everything is connected

Interview Template Question Six

Time: 22 minutes 49 seconds

Interviewer: How do you judge the quality of your involvement within a project?

Steven Kyffin:

Time: 25 minutes 04 seconds

[5.6.1] If the project has enabled me to grow and learn and develop so that I am more effective more helpful next time then that is good for me but that doesn't tell me if I have contributed to the project to the activity well. I can only do

that by the others in the group by talking to them against given references and asking them whether I have helped either initiate it, complete it, transfer it, integrate it, hold it together, give it direction, give it enthusiasm, motivate it and so on because that's my job now as a sort of direction coach.

Time: 25 minutes 40 seconds

[5.6.2] Coming up with ideas is pretty easy; making them reach the other end of the net is not easy. Ideas are two a penny at one level, even through people say, '*How do you have ideas*', ideas is not the problem, making them the right ideas, better ideas is a problem and you can only do that if you have reference points to judge better-ness against and then successful exploiting them.

Interview Template Question Five

Time: 26 minutes 07 seconds

Interviewer: How do you judge that better-ness of an idea?

Steven Kyffin:

Time: 27 minutes 15 seconds

[5.5.1] Everything is dependant upon the stakeholder and who are they and how do you know that they're not being selfish, self-centred and so on is an other issue but ultimately we get the stakeholder objectives out early and then respond to those accordingly, appropriately.

Time: 25 minutes 37 seconds

Interviewer: How do you balance that against your gut instinct for, when you propose something you must have a sense of its appropriateness or the strength of a direction you're proposing before you put it forward to be analysed by the set of criterion. First of all, how do you judge those immediate reactions and secondly how do you deal with those reactions against the...

Steven Kyffin:

Time: 30 minutes 39 seconds

[5.5.2] Is it our responsibility to give them the best quality because we know that it's culturally enriching and to give them slap dash stuff is an insult to their

humanity even though they're not sensitive to notice. That has been a designer's and architect's dilemma, or any creative persons dilemma forever.

Time: 30 minutes 59 seconds

Interviewer: And how do you feel about that, how do you deal with that?

Steven Kyffin:

Time: 31 minutes 07 seconds

[5.5.3] My position on it is that I don't think you can tell anybody, even when I want to and I do it when I am teaching, you just want to download 30 years of experience into someone's head in five minutes because you know that they don't have to go through the pain that you went through. But of course you can't, they have to, they have to learn it for themselves but perhaps they could learn it a bit quicker otherwise we never go forwards, it's a shame we only live for 60 years instead of 200 hundred. The dilemma is to realise that you can't just download it all at once but you do have to enable them to learn so learning or enabling or teaching is not about teaching it's about enabled learning and it's the same with customers and clients.

Interview Template Question Seven

Time: 32 minutes 31 seconds

Interviewer: How do you define or describe a good designer? What's your definition?

Steven Kyffin:

Time: 32 minutes 51 seconds

[5.7.1] Someone who is open, imaginative, curious, passionate, rigorously collaborative, will work with others despite the pain and is always in search of the highest level of expression, wait, how do you qualify that, the highest... I don't know how to do that, I don't know how to say that, the highest level of art, someone who can plan, someone who is very logical, who is poetic, someone who is instinctive, someone who can be very justified at the right time, someone who can speak all languages of all customers simultaneously, someone who can be at one with you, someone who can unify all the complexity, someone who can let go and give their ideas away and not get

upset when people trash them, someone who can make and offer a projection a project, a project with an open hand, someone who doesn't criticise other people does not destroy other peoples' inability to understand them, someone who will create and then give it and let it live, someone who does not confine the receiver into the world of the creator. Is there anyone like that?

Time: 34 minutes 30 seconds

[5.7.2] Somebody who is conscious about what they are doing, that is the most important at all the different levels.

Time: 34 minutes 38 seconds

[5.7.2] I think because design is about planning, is about intention, it's not about intuitive flow and instinctive and so on in the way that an artist might be.

Time: 35 minutes 45 seconds

[5.7.3] A fine artist doesn't have to do that a musician certainly can't do that designers and architects are the one practice, the one discipline where they have to be able to communicate in words, numbers and pictures simultaneously. It's really hard, or they need interpreters.

Interview Template Question Eight

Time: 36 minutes 04 seconds

Interviewer: How do you improve your design practice?

Steven Kyffin:

Time: 36 minutes 09 seconds

[5.8.1] Through practice and reflection and the relationships with the people I work with which helps inform it.

Time: 36 minutes 50 seconds

[5.8.2] My biggest challenge is my relationships with other people so, and I think most of the world suffers from that one, but certainly I think it's true for me. So that is what I reflect upon most, and also being able to articulate in English in the spoken and written language what it is I am trying to say in the visual language and learning the languages of all the different stakeholders, that's very hard.

Time: 37 minutes 44 seconds

[5.8.3] As design is a public act my improvement is noticed by the effect it has upon others and therefore if others report back, discuss, quote, refer to, involve me more and more and at more levels then I add more value to their world and the world that we all touch.

Time: 38 minutes 10 seconds

[5.8.4] So if the things I have to say are quoted or if the things I draw are reprinted or if the teams that we inspire and put together grow and can sustain themselves without me being there then the spirit I have put among them lives on and the leadership lives on without me having to be personally visible and then you know that the intention has a life of its own rather than being dependant upon me as a persona, or me as a physical persona.

Interview Template Question Nine

Time: 38 minutes 45 seconds

Interviewer: What are the typical difficulties that designers encounter or that you encounter?

Steven Kyffin:

Time: 38 minutes 55 seconds

[5.9.1] Linguistic complexity, not being able to communicate with others, having expectations, which are lived of others, which are lived out through frustration which in fact repel others rather than include them, being dyslexic is the word but, being numerically dispraxic, there must be some word but I don't know what it is, it's not dispraxic, but there must be some word that represents the fact that you can't communicate with people in other disciplines, that's the biggest thing.

Time: 39 minutes 27 seconds

[5.9.2] Design is an integrated discipline, is a connected discipline and if you can't speak with the languages of the people you are connecting with then you end up in isolation and therefore you're not being a designer anymore.

Time: 39 minutes 41 seconds

Interviewer: So what are the difficulties of letting go of that individual sense and becoming more integrated into that team that inter-disciplinary act that you're describing?

Steven Kyffin:

Time: 40 minutes 02 seconds

[5.9.3] You're having to deny yourself and it's not in our nature to do that, ego or whatever it is hits out early. It has to be a conscious choice to let go.

Interview Template Question Ten

Time: 40 minutes 24 seconds

Interviewer: What are the design situations that put you in the greatest turmoil?

Steven Kyffin:

Time: 40 minutes 37 seconds

[5.10.1] I am personally more motivated by the idea becoming reality rather than people growing while making the idea become reality, so I am more of an issue person than a social cohesion person, although other people tell me that's not the case but that is how it feels to me.

Time: 41 minutes 01 second

[5.10.2] I noticed even with talking to the students just now, I just want them, I am torn between them getting on with it and them making sense and me just listening to them in order to make them feel better about themselves and feel more confident and therefore grow a bit more, because I am trying to get out of them what their ideas are so that I can speak into them with them to help them go forwards, where as they probably don't need that they just need to be encouraged as human beings but that doesn't help their work today, it helps them today but not their work.

Time: 42 minutes 35 seconds

[5.10.3] I know that they are screaming at me just saying just make me feel good and I am pushing the, because you only get 20 minutes or half an hour with someone and I could just listen, that would be really helpful, but I feel that for me it's not helpful enough because I haven't had a direct influence on the but it probably has, but that's my own personal added value.

Time: 43 minutes 01 second

Interviewer: How do you deal with that turmoil and I guess that dissatisfaction?

Steven Kyffin:

Time: 43 minutes 10 seconds

[5.10.4] Well conversations like this are good because it makes me aware of what is actually happening, but I talk about these sorts of things a lot with friends in all sorts of aspects of being a father, of being a husband, being a son, being a brother, being a professional, being a coach, being a peripatetic teacher coming in here two days a year or whatever. So I am quite conscious of what I do and how and why I do it, I am quite aware even though the heat of the moment overwhelms my consciousness from time to time.

Interview Template Question Eleven

Time: 43 minutes 40 seconds

Interviewer: What role do you feel your emotions play while designing? Or being involved in your role as a professional?

Steven Kyffin:

Time: 45 minutes 00 seconds

[5.11.1] I think I am conscious of what is going on. I do become impatient, so I do show my impatience but I am also very sensitive to people and to self, in myself, I am sensitive to what is going on around me although in some peoples' books I may over react, take things personally when they are not intended, jump to conclusions about other peoples' intentions. But if you mean does my lack, does my ability to control my emotions dampen the way I am passionate about ideas about things, maybe it does, maybe it does because I am quite controlled about those sorts of things. I am very self-conscious as a person.

Time: 46 minutes 03 seconds

[5.11.2] Conscious of myself and therefore I find it hard standing up in front of people and risking making a fool of myself because I am always thinking they know more and they can understand and see my own insecurities or not

knowing enough and in fact they probably can't and don't even realise, I don't know if that is an emotional response.

Time: 48 minutes 10 seconds

Interviewer: What do you consider is a skilful way of dealing with that?

Steven Kyffin:

Time: 48 minutes 22 seconds

[5.11.3] You make it sound like one should be aware of those things and I think that's true and then to start to consider those things and realise where you have to change and don't see it as a failure see it as learning and growth and make the adjustments and move on; apparently I am quite good at it

Interview Template Question Twelve

Time: 52 minutes 16 seconds

Interviewer: How would you describe your general condition when you feel you're working really well? What are you like?

Steven Kyffin:

Time: 53 minutes 03 seconds

[5.12.1] Valued, feeling valued, my relationships are good, strong, effective with other people, I can see that they're motivated as well, moving forwards, they have self worth in the team, they have a sense of security.

Time: 53 minutes 30 seconds

[5.12.2] Contentedness, looking forwards, those three words that I have used before, I know who I am, I am a bit more certain about who I am and where my value is, I know that I belong in the group with the people and culture I am in. and I know that I am going forwards, I'm not just stagnating or going backwards or energy is just flowing from me. So that's how I am, a strong sense of direction, a strong sense of identity and a strong sense of team or collective belonging.

Time: 54 minutes 15 seconds

[5.12.3] Challenged, learning a lot, changing, more conscious, more aware.

Interview Template Question Thirteen

Time: 55 minutes 19 seconds

Interviewer: What are the different mental functionings that different design activities require?

Steven Kyffin:

Time: 55 minutes 26 seconds

[5.13.1] Really intense trying to unravel a problem about something that is but isn't right, how do you make it better, so literally designing a, talking to the guy with a suitcase about how do I get the handles to flick out and all the bits and compartments to, doing the jigsaw has a completely different problem solving mechanic mentally than thinking about what the future might be for peoples' creativity and trying to understand them and getting a notion of what the people, what the cultural values and world values are in order that we can then design things for it, so a bigger brush stroke picture requires a different mind and attitude, mindset and attitude to imagine that rather than doing the jigsaw. That's two massive levels of the spectrum and designing and planning the project plan and running out a team and building what the time scales are and the financial constraints, where are the people coming from what the competencies and capabilities are and mashing them all up together and saying well that will enable the jigsaw to be do over a long period but it doesn't set the direction or solve the bit, the where, the next bit from here, but it's, sort of, something in between I suppose if there were a linear path a there probably isn't about making a big strategic plan to enable the battle to be won

Time: 56 minutes 49 seconds

Interviewer: Do you think that through being involved in design you experience the world differently to other people?

Steven Kyffin:

Time: 56 minutes 57 seconds

[5.13.2] Because design is a connected discipline, it's a connector, it's a unifier, it's a planner and it responds to the full human being, I know that lots of other disciplines say they do that but because I am not one of them I can't, I don't

know, that's how I see it, because we have to be able to speak in the three languages.

Time: 57 minutes 26 seconds

[5.13.3] I think so but only because other people tell me so, Wendy McEye, said, *'You see the world differently to anyone I know, you see the world completely differently, you're always going one level of abstraction out from the question we ask to one behind the question, you still produce the thing as a result of it but it now refers to a bigger issue a bigger context, it's context driven rather than problem driven'*.

Time: 58 minutes 10 seconds

Interviewer: What do you think imagination is, it refers back to what you were saying before about where do ideas come from, what do you feel imagination is?

Steven Kyffin:

Time: 58 minutes 33 seconds

[5.13.4] Research is understanding what is, imagination is making propositions about what could be.

Time: 58 minutes 38 seconds

Interviewer: How does someone do that?

Time: 58 minutes 33 seconds

[5.13.5] By breaking the bond of what is, by breaking the strings of what is.

Time: 58 minutes 56 seconds

Interviewer How could someone possible be constrained by that?

Steven Kyffin:

Time: 01 hours 00 minutes 24 seconds

[5.13.6] They believe that their experience drives everything and because they choose to believe that they then only think back to the past and extrapolate from there rather than thinking from the future inwards about what could be or what might be rather than, even what should be, and they're so focused upon extrapolation as a principle for development rather than taking what scientists

call utopian normalisms or normative propositions and working back because they don't relate to experience and we have been told that you can only think forwards by, based upon the stuff behind you. And that might just not be true.

4.2.6 – Case study six

Interviewee: Tim Brown, CEO of IDEO

Date: Thursday 31st March 2006

Location: Centre for Design Research, Newcastle

Time: 0947

Interview Template Question One

Time: 00 minutes 09 seconds

Interviewer: What is design?

Tim Brown:

Time: 00 minutes 30 seconds

[6.1.1] It's a form of problem solving that relies on the synthesis of insights, if you will, patterns that create holistic, unexpected holistic concepts which you make tangible in some way and those tangible things have an impact on some people. It's as a friend of mine calls it, it's a form of integrative thinking.

Time: 01 minutes 00 seconds

Interviewer: So, what do you think insights are?

Tim Brown:

Time: 01 minutes 18 seconds

[6.1.2] The creative process at some level is about creating patterns out of things. The points that make up those patterns are made out of single or often many insights.

Time: 01 minutes 30 seconds

[6.1.3] Those insights might come from the world in other words how people do things, what you see in the world, how people behave, they might come from technology and the way physically the world happens, or they might come

from other systems and processes like business and how business works or how society works or how government systems work.

Time: 01 minutes 57 seconds

[6.1.4] Those insights can come from any or all of those things and one tries to create patterns from those that have some sort of meaning.

Time: 02 minutes 07 seconds

Interviewer: So, in seeing those patterns and relationships and points of contact is there anything an individual can do to help create the conditions that help bring forth insights?

Tim Brown:

Time: 02 minutes 26 seconds

[6.1.5] I really do believe that the kinds of design problems that we are tackling today are far too complex for individuals to tackle on their own. So the notion of the lonely sole designer staring at their drawing board is just completely irrelevant today, so I mean everything we do is team based and there are multiple reasons for that, one is that teams can see a lot more insights at once than individuals can, secondly it means you can people from different backgrounds with different points of view about the world and therefore you have a much richer set of insights.

Time: 03 minutes 02 seconds

[6.1.6] Make as many of, as much of the insight gathering visual because one of the differences between designers and everybody else is that we do use a visual process of synthesis, we don't use a literal process of synthesis or a mathematical process of synthesis we use a visual process of synthesis we see visual patterns

Interview Template Question Two

Time: 03 minutes 58 seconds

Interviewer: What do you believe design is for, what is the point of it?

Tim Brown:

Time: 03 minutes 02 seconds

[6.2.1] It solves problems that people don't, yeah it solves problems, creates things in the world that didn't exist before.

Time: 04 minutes 10 seconds

Interviewer: Who benefits from design, does everybody?

Tim Brown:

Time: 03 minutes 02 seconds

[6.2.2] The point of design is to benefit somebody other than the designer, it's not design if you're only benefiting yourself as a designer like art or some other creative process or artistic expression. So if you can't measure some tangible impact on others through the process you're carrying out then you're not designing but that doesn't mean to say that, it would be utopian to imagine that every design outcome was beneficial to everybody that's unlikely to be the case, design is often a condition of trade offs.

Time: 05 minutes 00 seconds

Interviewer: Ok, so in what sense are people disadvantaged through design?

Tim Brown:

Time: 05 minutes 45 seconds

[6.2.3] I don't think designers are ever thinking much, in general thinking about this, it's not often you have to make a hard choice, it's an inherent part of the process, I don't think, designers don't often step back and say '*Who am I negatively impacting*', although the more we get to deal with issues of things like sustainability for instance the more we are tending to think about how are we negatively impacting the whole planet from what we do, which is a question that gets asked by designers more these days than perhaps it used to be.

Time: 06 minutes 13 seconds

Interviewer: What do you see as the future direction for the profession? How do you think it will change?

Tim Brown:

Time: 06 minutes 28 seconds

[6.2.4] Design's shifting from being a fairly narrow process that was really dedicated to the creation of artefacts, of products, communications to being a process that can apply to a much broader set of problems and indeed always has been it's just designers weren't trained to tackle all those problems.

Time: 06 minutes 55 seconds

[6.2.5] Design thinking is a mental process, a way of approaching problem solving, which can honestly be applied by anybody who knows how to do it, how to use the tools.

Time: 07 minutes 12 seconds

[6.2.6] You can uncover design thinking going on all over the place. Scientists often use design thinking, technologists often use design thinking, business people use design thinking, so I think one of the places where the profession is changing is, certainly for us anyway, is that we find ourselves being asked to tackle problems that are not classical design problems.

Time: 07 minutes 42 seconds

[6.2.7] A lot of designers resist it, understandable, because you lose some of the craft of design when you do that. I mean if you're trying to design a business strategy for a company which you can do as a design problem and the outcome might be certain kinds of design outcomes, like films, exhibitions or whatever, but, so there is some design craft involved but it isn't the same necessarily as designing a product so I think that some designers are understandable resistant to it and others find that quite an exciting prospect.

Time: 08 minutes 15 seconds

[6.2.8] I think essentially the design profession seems to be diversifying a lot, seems to be getting richer and broader you have companies who you would never have thought of as being design companies before beginning to look awfully like design companies, companies like IBM for instance.

Interview Template Question Three

Time: 08 minutes 40 seconds

Interviewer: What are your motivations within the profession, what motivates you these days?

Tim Brown:

Time: 08 minutes 48 seconds

[6.3.1] I'm motivated by two things primarily, one to have the most interesting and useful impact on the world through the work we get to do with our clients and that's impact either beneficial impact to our clients and/or beneficial impact to the world in general and the second thing, and the second thing is just as important as the first thing and that's to make the company that I run as fascinating, enjoyable, rewarding a place to be creative, so that's mostly what drives me.

Time: 10 minutes 10 seconds

Interviewer: How do you feel your motivation has changed throughout your career?

Tim Brown:

Time: 10 minutes 16 seconds

[6.3.2] I left the design school, not here [Northumbria University, formally Newcastle Polytechnic] I left here and then went to the Royal College [of Art] just being interested in creating beautiful objects and it made me more interested in creating new kinds of beautiful objects [...] and I got over that pretty fast and then got interested in just the seductiveness of interesting design problems particularly one's that were complex. We did a lot of work in new technology, in Japan and things like that and how new technology was changing people's [lives], then, this is before the internet and lots of things like that, thinking about how technology was going to change people's lives and how we were going to deal with it and that was something that I enjoyed for a long time and then I started running businesses and so my motivation was how do you run a business, what's it like to run a business and now I have been running businesses for quite a long time and so it's almost gone full circle again, it's no longer about designing beautiful objects but it is about doing projects, having an output of what we do as an organisation able to be judged in some way and be valuable.

Interview Template Question Four

Time: 11 minutes 38 seconds

Interviewer: So, how do you judge the quality of a design project?

Tim Brown:

Time: 11 minutes 42 seconds

[6.4.1] It's obviously pretty multi-faceted and it's also something that's got a time factor to it, you can judge certain things about a design project the minute you've done it or even while it's going on, you can judge other things about it six months or a year after you've finished and the products are out in the market place and some things you can't judge for ten years, you don't know whether you've created a classic product, something that's going to have a lasting impact until years after you've done it.

Time: 12 minutes 22 seconds

[6.4.2] We look at everything from have we impacted the culture of the company we were working with have we changed the way they do things, have we brought new ideas into the world that are really relevant, did we get the dam thing out into the market, did we actually make a difference, was it fun, was it creatively stimulating, are we proud of it.

Interview Template Question Five

Time: 12 minutes 42 seconds

Interviewer: Are they the same factors you would use to judge your own personal involvement, when you look back and think what was the quality of my involvement?

Tim Brown:

Time: 12 minutes 52 seconds

[6.5.1] Sometimes it's hard to do that in the mad rush of everyday, but I like to think that one can step back and say, did I make a difference.

Time: 13 minutes 09 seconds

[6.5.2] I take a lot of pleasure from what we do as an organisation and I think that's the big shift that anyone makes when they go from being an individual to being part of an organisation and then being a steward of that organisation is that you go from being really focused upon your own efforts to being the efforts of everybody so I get to be very proud of what 450 people do and that's enormously rewarding and to some degree, but then it's very easy not to step

back, it's very easy to forget to look at what you do as an individual but we have a pretty considered process for doing that within our organisation we're quite careful that everyone gets to think about that and think about what they're doing and how they're doing it.

Interview Template Question Seven

Time: 15 minutes 44 seconds

Interviewer: How would you describe or define a good designer?

Tim Brown:

Time: 15 minutes 48 seconds

[6.7.1] I talk about this notion of people being 'T' shaped and what I mean by that is that they have two qualities to them, one is that they have a quality of depth an ability to do something and that might classical have been the craft of a particular design discipline, graphic design, industrial design, architecture but in our organisation that might include, that might be the craft of linguistics or psychology or mechanical engineering or electrical engineering, we have many many different disciplines, so they have that depth but what allows them to work in a design environment, so that's the depth the vertical strut of the 'T', the breadth the horizontal stroke of the 'T' is really what we describe as empathy, so to be a great designer you have to be able to have empathy for others you have to be able to, you have to be able to get outside of your own view of the world, your own existence and have an enthusiasm and desire to understand the world from other people's perspective, so that applies in two different ways when you're being a designer one is that's how you get to be empathic to the people that you're trying to solve problems for so that's tremendously important but just as importantly is how you get to be empathic and interested in all those different disciplines that contribute to the process.

Time: 18 minutes 04 seconds

Interviewer: Are there any other qualities that you would consider important?

Tim Brown:

Time: 18 minutes 07 seconds

[6.7.2] There's a desire to produce tangibility that's incredibly important in design, a desire to make things in one form and another and again you can see that in people even people who aren't classically trained designers but a desire to actually turn something from an abstract idea into some kind of reality, if you, if that isn't your natural way of thinking and working then you're going to have a hard time being a designer

Interview Template Question Eight

Time: 18 minutes 43 seconds

Interviewer: How do you develop your practice or the way that you work?

Tim Brown:

Time: 19 minutes 15 seconds

[6.8.1] I guess most of what engages me these days is just how many places one can see the possibilities for design and exploring that and exploring how design can... you know I spent some time in January working with some folks on some AIDS vaccines and stuff and trying to figure out how design can make a difference to what they were doing, those, so it's really more about where applications for design thinking and how do we start to explore those spaces with design thinking and that's intellectually challenging and exciting.

Time: 20 minutes 10 seconds

[6.8.2] Trying to remain connected in some way is a pretty big challenge but you know whether it's getting involved in design crits or trying to think of everything as a design problem and trying to turn everything into a prototype and staying somewhat connected that way.

Time: 20 minutes 25 seconds

Interviewer: Is that something you feel you carry with you 24/7?

Tim Brown:

Time: 20 minutes 38 seconds

[6.8.3] I don't think I am as extreme as some, there are some people who never seem to be able to get out of the mind set of being a designer, I don't think I am quite that extreme, but, yeah, I think you do because it's your view point on life

and I don't think you get to step in and out of that and to be honest I think that's what's rewarding about being a designer and I think that's why a lot of people love being a designer. You can go, you can actually go through life always being a designer and it works out pretty well. I think there are certain modes, lots of people in the world who can't possible go through their life being what they do professionally, it's either too depressing or it's too, it just doesn't work you know. I think you can go through life being a teacher all the time, I think you can go through life being a designer all the time and I think it's actually a pretty positive thing and so that's one of the rewarding things about being a designer, I think you can put yourself in this design mind if you will, a design frame of mind and operate that way and it works.

Interview Template Question Twelve

Time: 21 minutes 39 seconds

Interviewer: What, how would you describe your general condition when you feel your working really well?

Tim Brown:

Time: 21 minutes 46 seconds

[6.12.1] Not having just got off an over night flight, not having not slept in a couple of days that's for sure! It's funny I think for me my best ideas flow, my best dialogues happen when, life has to have a kind of rhythm to it and I don't mean a steady rhythm but you can't, being constantly relaxed doesn't work, being constantly under pressure doesn't work, it's about the changes. Often I will find myself decompressing on a flight home after a week away doing lots of speeches and stuff and a whole bunch of ideas will suddenly [sounds of a bomb], you know, pour out. It's about... you do actually have to treat yourself reasonably well, you do actually have to be reasonable healthy I do think that design requires a fit mind.

Time: 22 minutes 40 seconds

Interviewer: What does that mean?

Tim Brown:

Time: 22 minutes 43 seconds

[6.12.2] You actually have to look after yourself and that... and I believe that's true of everybody but I think there's something about the creative process that requires your brain to work pretty hard and it has to be open to certain things and so you can't be scared and frightened. If you're scared and frightened you can't design, you can't be in too much of a hurry all of the time or you can't design and you kind of need to be fit, mentally fit and physically fit I mean I honestly think that designers who are, and I see it in a lot of our folks, we have a particularly and again because we're a Californian based company we have a slightly more intense view of that and I'm not a particularly good example of that, there are lots of people in my organisation who are insanely fit human beings and I think it makes a difference. So there is something in being in a good state of mind and state of body that does help you be creative. I mean you see it in people who have been working too hard for too long they just stop having good ideas.

Interview Template Question Nine

Time: 23 minutes 49 seconds 23.49

Interviewer: What are the difficulties that designers encounter?

Tim Brown:

Time: 23 minutes 59 seconds

[6.9.1] Design problems are incredible complex and it's hard to see those patterns sometimes and that's frustrating and hard work, you know designers often have to deal with working on design problems that they may not be able to see how to make them, they're not always the problems they want to work on so that can be frustrating.

Time: 23 minutes 19 seconds

[6.9.2] Design is a political process as well as a creative process in others words you have to convince other people that your ideas are good ideas in order to get them implemented because designers rarely have the ability to actually execute everything and that can be frustrating because often you work with people who aren't empathic to what you do, or understand what you do, or are confused or frightened by what you do, threatened by what you do and so that

whole political process can be very frustrating a lot of designers aren't great communicators, they rely on their work to do the communication for them and that isn't always enough and so that can be pretty difficult, that can be difficult for designers.

Time: 24 minutes 52 seconds

[6.9.3] There's a sort of optimism that designers have to have, you have to be optimistic that you can solve the problem and the rest of the world doesn't always have that optimism and that can be frustrating, there's a scepticism and pessimism about the world that many people have that many designers can find frustrating and it's one of the reasons that I love working in America as opposed to here to be honest with you, in general you find more people who are optimistic there than you do here, it's a gross over generalisation but in general it's largely true that you come across more people who are optimistic and more willing to do things and take risks than you would find here.

Interview Template Question Ten

Time: 25 minutes 35 seconds

Interview: So what are the design situations that put you in greatest turmoil?

Tim Brown:

Time: 25 minutes 41 seconds

[6.10.1] Conflict, I mean I find that, that may just be me from a personality stand point that I don't like dealing with conflict and so if you've got a situation where you've got people who are really unhappy with an outcome or aren't happy with the process and yet you know the outcome is right, outcome or... and then it can get pretty uncomfortable and it's not something I enjoy very much.

Time: 26 minutes 08 seconds

[6.10.2] I didn't used to be able to deal with it at all, I used to be terrible, but now I've got used to it to the point where I've just found mechanisms for dealing with it, I've learnt to literally treat the conflict as a design situation. There's a set of issues here and there's a possible set of outcomes, I've just got to figure out which one the right one is and try and work it through rather than

deal with it on an emotional level, as soon as you do it on an emotional level it just becomes incredible stressful.

Interview Template Question Nine (cont.)

Time: 26 minutes 33 seconds

Interviewer: You mentioned in talking about the difficulties of designers that sometimes it can be difficult when your working on a project that's not the one you want to work on, how do you think people, or how would you deal with that?

Tim Brown:

Time: 27 minutes 03 seconds

[6.9.4] Great designers know how to make every project cool rather than expecting a project to make them cool and you find a lot of young designers particularly who are just not, or people just don't think in the right way they want to pick projects that make them cool.

Time: 27 minutes 50 seconds

[6.9.5] If you're creative you will find a creative take on any project within reason and so the best designers are able to do that.

Interview Template Question Thirteen

Time: 28 minutes 10 seconds

Interviewer: Do different design activities require you to function mentally in different ways?

Tim Brown:

Time: 28 minutes 20 seconds

[6.13.1] There's certainly, the difference, the two extremes between complex, things that are complex intellectually verses things that are complex executionally so for instance if you are trying to create a new strategy for a company that might include brands and products and experiences it's very complicated with lots of business issues to deal with the way you tackle that problem verses let's say creating a new building, which is very complex executionally so that requires a lot of planning. So executional complexity requires a lot of planning where as intellectual complexity requires the opposite

of planning, it requires openness and space an ability to look at something from lots of different directions and let the points of view emerge and you can't plan those very easily and so they're quite different experiences and there are some designers who can cross over between those two and do them both well but many that can't.

Interview Template Question Eleven

Time: 30 minutes 05 seconds

Interviewer: What role do you feel your emotions in your work?

Tim Brown:

Time: 30 minutes 16 seconds

[6.11.1] At one level if you're not feeling and again it's back to this optimism thing, if you're not feeling good about what you're doing then you don't do good work. So that's one thing. A lot of what we do is reach people emotionally through the design that we do and therefore you have got to open your emotions up to what it is you're doing, you can't just rationally... I think where design can get itself into trouble sometimes is when it's overly rational and a lot of the best designers I know just kind of intuit what the right emotional stance around something is, they can't tell you why it is and you can't often talk about emotions that way they just do, they just know it and so, yeah, emotions are pretty important, if you're feeling pissed off it's hard to do something that's joyful.

Time: 31 minutes 12 seconds

Interviewer: So what would you consider their skilful use, if you like, it's great when you're feeling good and the emotions are positive and that can be incredible beneficial to the project and the people you're working with, but sometimes you do feel a little bit down, how would you describe, in situations where possible what you have isn't necessarily what you want, what do you do there?

Tim Brown:

Time: 31 minutes 45 seconds

[6.11.2] It's certainly helpful when you're working in teams, because teams can help you deal with that. I mean your colleagues can, if everyone is conscious that that is part of the issue of working in a team and we try to teach people about some of that stuff and actually educate them a little bit emotionally about what it means for teams to go through projects. There are various points of optimism and points of pessimism never mind whatever kind of personal stuff you want to lay on over the top of that, we could be a lot more sophisticated about that than we are but we try.

Time: 31 minutes 45 seconds

[6.11.3] Designers that are completely intuitive about their process they just do what feels right the whole time completely rely on their emotions being in the right place but if you've got a tool kit, a set of methods and approaches that you know you can apply then they help kind of level that, whatever those emotional differences might be to some degree, moderate them in some way.

Interview Template Question Fourteen

Time: 33 minutes 04 seconds

Interviewer: Are there any key moments during your career where you have had a change in understanding that's affected the way you think about design or the way that you do design?

Tim Brown:

Time: 31 minutes 51 seconds

[6.14.1] It made me realise how bad I was at understanding how other people lived their lives and that if I got better at it then I would come up with better design solutions and I saw how much skill there was in, you didn't just go up to them and ask them you looked really hard in this very skilful process.

4.2.7 – Case study seven

Based upon Thackara's background and domain of practice it was felt that some of the Interview Template questions would not be successfully engaged with. Additionally, the timeframe for the interview was 30 minutes as opposed 60 minutes, which had been judged as ideal. For these reasons the questions asked in the

interview were modified from the Interview Template. The questions that were asked in the interview with Thackara are still considered as an attempt to test the conjectures presented in Chapter 3. The questions below have been labelled to indicate which of the Interview Template questions were being to addressed.

Interviewee: John Thackara, DOTT07 and Doors of Perception

Date: Friday 7th April 2006

Location: The Robert Stephenson Centre

Time: 1013

Interview Template Question One

Time: 00 minutes 07 seconds

Interviewer: What is design?

John Thackara:

Time: 00 minutes 19 seconds

[7.1.1] Design is either everything or a lot of different things depending on the context and the situation.

Time: 00 minutes 29 seconds

[7.1.2] I use Herb Simon's definition, which is something to do with design being the patterning of human activities toward a desired end.

Time: 00 minutes 42 seconds

[7.1.3] It's about intentionality and trying to change things in a planned way.

Time: 00 minutes 46 seconds

Interviewer: In that sense is that an activity everybody is involved with and how does that stack up against a profession of designers?

John Thackara:

Time: 01 minutes 06 seconds

[7.1.4] My position is that a lot of things in this world are designed by people who either don't call themselves designers or don't know that they're designing but are doing it anyway and that ranges from people who, you know, create motorway systems to people who arrange flowers in a flower shop or who cut

your body open with a scalpel there are all sorts of ways that people do things towards a desired end and plan it in advance and organise their actions in a methodical manner which is arguably a form of design

Interview Template Question Two

Time: 03 minutes 05 seconds

Interviewer: So what do you think is the purpose of design, why do we do it, what's it for?

John Thackara:

Time: 03 minutes 11 seconds

[7.2.1] I think people rearrange reality to survive and the notions of survival have changed throughout the years, it's what human beings do.

Time: 03 minutes 46 seconds

[7.2.2] There are people who take reality to automatically include the growth of technology for example and a lot of people who consider their job as designers is to apply technology to everyday activities whether that's sitting in a chair or cooking food or moving around. It is regarded by many people that it is self evident that what you do is put technology into that activity, which I don't agree with that proposal but it's what the process of a technological society is about, other people assume that it's their right and duty as a designer to remove human beings from activities and replace them with machines and this is something that rather a large proportion of the companies in the world and the business schools and the banks and everybody that's what they regard as self evident and again I, that's not my opinion, my opinion is that human beings are more interesting and more important than machines and should remain so

Time: 04 minutes 49 seconds

Interviewer: Who do you think, in the position where current design activities are, who are the beneficiaries of those processes?

John Thackara:

Time: 05 minutes 09 seconds

[7.2.3] There is no thing as one location for design activities, there are multiple locations, the aerospace industry, the movement and mobility industry, the food industry, the learning industry they all have people who are at different levels responding to need and or desires by rearranging things which are taking design actions and that applies to people who restructure design industries as well as to people who restructure things in the window of their shop.

Time: 05 minutes 42 seconds

Interviewer: That being the case then, do you think there should be a change in emphasis or a change in direction for the way we go about rearranging our reality?

John Thackara:

Time: 06 minutes 06 seconds

[7.2.4] What I propose to designers of all kinds is that one does it much more critically and with much more hesitation and with much more questioning rather than making assumptions that things are bad now and could be better if only I designed them differently but this applies equally to most aspects of daily life that you know.

Time: 06 minutes 35 seconds

[7.2.5] I think that there are some designers, quite a lot of designers that are insufficiently curious or critical about what they are doing on the other hand they have job and a mortgage and have to pay off their credit card bills, like along with many other people they don't make life complicated they just do their job. There are other people who regard themselves as having the right to change the world without having to take account of what other people might want and then there is a third group that is critical about the way that things are going and wishes to be part of a debate about alternatives and that's the group that I am in.

Interview Template Question Seven

Time: 07 minutes 11 seconds

Interviewer: Ok, what do you think are the important qualities for people to have within that group?

John Thackara:

Time: 07 minutes 23 seconds

[7.7.1] I think that one needs to have a kind of built in question mark when looking at things about, '*Is this as things have to be, is this as things should be*' and so in other words it's another word for a critical and questioning approach to things.

Time: 07 minutes 40 seconds

[7.7.2] I think that it's important that people who are not satisfied and are not comfortable with things should seek out other people, not per say people who agree with them, but just try and connect with people from different backgrounds and experiences because that way you get a different perspective on things and then you can see if you're misunderstanding things or just getting multiple points of view and part of that is to do with listening.

Time: 08 minutes 10 seconds

[7.7.3] Being open to what other people are saying and not rushing around trying to find evidence for what you already think, that is in general critical practice but that applies to writers or musicians or doctors or anybody else but it's the same territory.

Time: 08 minutes 32 seconds

[7.7.4] One should try and do things rather than just talk about them and engage in some sort of practice or intervention in a very tentative and not too blundering way because the world has far too many people talking about abstractions and increasing the barriers between the idea and the experience. So as far as I have any control over my situations I try to get involved in projects where one goes and partakes in activities in the real world and then learn from that.

Time: 09 minutes 05 seconds

Interviewer: Ok, do you think that the projects, or the sort of projects that you're trying to get involved with or that that sort of third group would endeavour to be part of, do you think they're different in, in which ways, how are they different to what the other groups are doing?

John Thackara:

Time: 09 minutes 27 seconds

[7.7.5] They don't just per say just do what the client says or they don't just say *'Yes of course it's ok to put technology into it'* or *'Of course it's ok to replace human beings with machines'*, it's an attitude and approach that by definition is different to the other two groups and by no means am I just describing people who are professional designers I'm talking about the part of the culture that says, *'We don't just have to be the victims of change we can also have some control over it in terms of what we think is important'*.

Time: 10 minutes 01 second

[7.7.6] I don't think I can generalise, if I think about who I hang about with in my life in general it's, they're a pretty mixed bunch so I don't think there is a profile. I wish there was because then I could go and find some more but in general we, I have found myself attracted to people around projects and questions which is what we have in common rather than that person being like me. So in Doors of Perception for example it's a pretty mixed group but we are united by an interest in a series of issues and questions that don't get discussed or dealt with elsewhere. Which is what teachers say, give people an interesting question and they will do amazing things so, not about being a kind of person.

Interview Template Question Three

Time: 10 minutes 54 seconds 10.54

Interviewer: What attracts those people to those questions do you think?

John Thackara:

Time: 11 minutes 12 seconds

[7.3.1] I just observe in my life and lots of other people do to that the kind of everyday life that we have arrived at now has all sorts of good things and all sorts of bad things as well. So qualities that are missing or people that are distressed by the experience of just being alive.

Time: 11 minutes 30 seconds

Interviewer: Could you go into depth a little bit more about what you perceive as those good things or those bad things in life?

John Thackara:

Time: 11 minutes 45 seconds

[7.3.2] The things that I bang on about in my writing and my lectures and my projects is that people are more important than machines and things as a proposition and that we should perhaps as designers broadly interpret it should spend more attention on enabling people to do things better for each other and for themselves than looking for tools and gadgets and infrastructures.

Interview Template Question Eight

Time: 12 minutes 11 seconds

Interviewer: How do you think we can go about that?

John Thackara:

Time: 12 minutes 16 seconds

[7.8.1] One is to be critical of the assumption that is rather widespread that it's fine to replace people with technology or to automate activities, that's just something that's in, that people just don't question nearly enough.

Time: 12 minutes 32 seconds

[7.8.2] Secondly is to, there are certain practical problems like business models or the taxation system you know it is, if you want to hire more people it's very hard to make your business work if it's a business, if you have people rather than machines, you may offer a crap experience if it's machines rather than human beings but at least on paper you can make a business proposition for it, so there's that kind of side of it the institutional, the way we arrange our economy is a problem.

Time: 13 minutes 17 seconds

[7.8.3] I would suppose that the third area would be, ok fine nice people should do things but what skills and qualities should people develop for them to be able to do that and that's where I sort of run out of a sort of deep answer but it's to do with people should be able to learn and react from each other on a constant basis so I errm don't know how they do that, how do we all do that we just grow up, grow old, learn stuff.

Interview Template Question Four

Time: 13 minutes 54 seconds

Interviewer: In doing things in a, or with a slower pace and more questioning mind something that is more sensitive to the consequences of what we do, how do we create projects that test that out, how do you embed that approach in the world we live?

John Thackara:

Time: 14 minutes 19 seconds

[7.4.1] In the DIEC [Design Innovation Research Centre] project but we did actually formally try without success in two or three iterations in different institutions to introduce the notion of a consequences lab or a con-lab where one could say well we ought to think more about the possible consequences but unless you formally build it into the process and say on stage three is a consideration of consequences good and bad unless you do that generally speaking it doesn't happen people might have private doubts about things or feel uneasy but in general businesses do not pay people to have doubts they pay people to design me that thing so I therefore you have to consciously build that into your activities as a required step in the same way that you have to actually budget time to think about things before you go any further I mean you could budget it i.e., at this point we should stop for a month do nothing and think about it, unfortunately this does not always receive a very positive response from the client particularly if they are expected to pay for that month but that I think is without being trite, that is almost what we have to do is to formally build it into the system which of course arguably happens a bit, enlightened companies give people a couple of weeks a year to go and do there own thing, to go and chill out and decompress.

Interview Template Question Nine

Time: 20 minutes 07 seconds

Interviewer: What role do you feel the designer's ego plays in their work, either to a positive or a detrimental consequence?

John Thackara:

Time: 21 minutes 45 seconds

[7.9.1] Maybe if one had a bit more self-critical reflection one would say well does the world need this thing which frankly if you asked that of any design project the pragmatic answer would be no the world doesn't need it particularly but then it is indeed true that designers become designers because they want to make and do things, it's a bit hard to tell them not to do it.

Time: 22 minutes 50 seconds

Interviewer: Ok, I guess part of the process of being involved in these projects is having some sort of sense of imagined future, or imagining possibilities and then creating a plan toward those, I would quite like to ask you about the role of those imagined futures and the danger of fantasy and I guess being deluded about...

John Thackara:

Time: 25 minutes 02 seconds

[7.9.2] We in DOTT say that's it's about how do we want to live, that's our sort of motto and I have been in the so called futures business most people call me, and I am happy to be called, a future gazer, or something, but as the years go by I realise that's really probably not a very good thing to do or to be because it means that you don't look at the present so I do think there's a whole proposition called reflecting critically about what things are like here and now is probably a more valuable thing to do than the dream about how things can be different.

Interview Template Question Four (cont.)

Time: 18 minutes 43 seconds

Interviewer: Ok, I've got three different statements I guess I would be interested to hear which you would put most emphasis on and what you believe their relationship is to one another. Changing our end goals. Changing our approach. Changing the way we look at things. In which way would you order those in importance and what do you feel is their relationship to one another?

John Thackara:

Time: 27 minutes 50 seconds

[7.4.2] Changing the way we look at things is what I had used to think was the number one which is why my company is called Doors of Perception, and our conferences are about changing the way that we look at whatever. The trouble is that that puts too much emphasis on perception, on individual judgement rather than the collective reflection on things so if that could be included into changes of approach I would say first approach second perception [...]. End goals are the, I don't think are very important, so I think one needs to be aware of consequences and critical about any certainties that one has about what those consequences maybe, have doubts about it and I think that's best done in a collective and collaborative way rather than is this the right thing to do and making a decision, so I think that when people act or behave socially it's much better. So that's the new approach doing, critically reflecting upon possibilities with others in an enlightened way.

Interview Template Question Nine (cont.)

Time: 29 minutes 01 second

Interviewer: What do you think are, not the benefits to doing things collaboratively I think other people have spoken about that a lot, what are the challenges I guess to an individual involved in that sort of collaborative venture? How's it difficult?

John Thackara:

Time: 29 minutes 23 seconds

[7.9.3] It's messy and complicated and if you just do what you want it's simpler a lot of people who are described as being grand and focused are, just do things and don't worry about it so a sense in which the negative side of that anything collaborative requires continuous negotiation with people about everything, the other possible problem is that you never actually come to a conclusion, never actually do anything which increasingly in my opinion is not such a bad thing but a lot of people regard action and change as a sign of success of a successful life, '*Yes he changed a lot of things*', so those two things but I don't think, I don't know whether I think there are lots of skills and learnings that would make it easier.

4.2.8 – Case study eight

Interviewee: Sean Blair, founder of Sean Blair Limited

Date: Friday 5th May 2006

Location: London

Time: 1306

Interview Template Question One

Time: 00 minutes 10 seconds

Interviewer: What is design?

Sean Blair:

Time: 01 minutes 03 seconds

[8.1.1] I suppose you and I have come from a particular genre and meaning making of design, you know, the Bauhaus created design education in its first form and we're going through the later stages of that. I tend to think that design, I'm almost anti the art's school trained model these days, not anti it, it just seems like such a limiting frame. Design is becoming a legitimate ubiquitous activity that all humans do, some do it better than others, some do it more intentionally than others, so in that sense it's a creative process.

Interview Template Question Two

Time: 02 minutes 07 seconds

Interviewer: In that case what do you think its purpose is? What's it for?

Sean Blair:

Time: 02 minutes 23 seconds

[8.2.1] I think human purpose exists within, let's call it a cultural construct or probably a more accurate word in my language would be a worldview. So the first question is, what is the prevailing worldview within which purpose is being articulated. So in a very obvious way, for many people... So the purpose of design in a consumerist Western market is to help companies to compete but your question, the obvious answer to your question, the purpose of design is to make better products to help organisations compete, all the wheels of commerce. I think the edges, the more subtle edges of what that may mean

are more interesting. I'm really struck by. I mean it's a really important theme in my inquiry, the Skolimowski model, which you must have come across Mythos, Logos, Theos, Mechanos. So for me the question is, what is the purpose of design in a Mechanistic worldview or what is the purpose of design in a post-mechanos worldview and I think that the purpose of design is probably changing as different people, different groups, engage more with the changing context.

Interview Template Question Two (cont.)

Time: 04 minutes 23 seconds

Interviewer: What's going to be involved realising that change from design within the Mechanos worldview to where it might be going or where you see it developing?

Sean Blair:

Time: 04 minutes 51 seconds

[8.2.2] On the homepage of my website I put participation co-creation, that's it. And I felt strongly sure-up by the academic body of work by people like Skolimowski, Peter Reason who are advocating that a participatory worldview is that beyond or I don't think they would argue that it was beyond mechanos but it's post-mechanos, so participation feel absolutely key.

Time: 06 minutes 28 seconds

Interviewer: What's involved in realising that participation? What does it require of us?

Sean Blair:

Time: 06 minutes 44 seconds

[8.2.3] I think it requires a sense of, there are phrases like egoless-ness that are in my mind, it requires an ability to, I'm also for some reason thinking about fear, I think people are very fearful of letting go so I don't know maybe there's something about ego. The traditional industrial design ego-centric model, this is my thing celebrate it and me as opposed to the come, join in, participate and we don't know the answer, those two positions are scary for some people.

Time: 07 minutes 51 seconds

[8.2.4] I'm really struck by the little child within us. I've run a workshop for a bunch of head teachers recently, not one person in that room was earning less than 60 grand a year, they're top head teachers and there was a lot of little child present, fear of getting it wrong, being seen to not know, to be foolish, so at a psycho-level maybe there's something about feeling safe and feeling secure because if you don't feel safe and secure you will probably be quiet. So it requires senses of safety and security, it requires something about an aware relationship with ego, it requires letting go of fear maybe.

Time: 09 minutes 10 seconds

[8.2.5] It might take a crisis and if you believe the environmentalist message of climate change then frankly the only thing that's going to change human behaviour is a bloody great crisis and maybe even that won't.

Interview Template Question Five

Time: 10 minutes 50 seconds

Interviewer: How do you judge the quality of a design project?

Sean Blair:

Time: 11 minutes 30 seconds

[8.5.1] If you think design is the kind of design that I learnt when I was at university it would be the extent to which the designer has really done their homework and their research and found out what people really need and want and what works and what doesn't work and they have come up with some elegant solutions towards that, it feels a tiny winy bit thin.

Time: 12 minutes 33 seconds

[8.5.2] If we tried to talk about responsibility in design practice the traditional answer seems a bit thin because we're not really taking responsibility for the whole product life cycle. If design is more broadly interpreted in a way that I'm now imagining it, the design of services as a participatory activity, then the success criteria are very different. I think it's the extent to which there is a high order of participation and a high level of participation, the extent to which humans work well together with each other.

Time: 13 minutes 27 seconds

[8.5.3] The extent to which people can communicate truthfully with each other and we're pretty poor at that too, we're scared of being honest with each other, or can't do it in ways that don't offend.

Time: 13 minutes 53 seconds

[8.5.4] There's probably a thread around, let's call it discovery, that's common to both sets of activities. There's probably a thread about creativity that's probably common to both. I'm thinking about the Spirit of Creation model of Discovery, Generation, Synthesis and Enterprise, so I think that discovery and generation is really kind of common. After generation, synthesis is also kind of generic. Enterprise is a slightly dodgy word because it kind of implies commercialisation but if that word means implementation, you know beyond use then I think there are some generic practices regardless of whichever paradigm.

Time: 15 minutes 19 seconds

[8.5.5] The extent to which the output is useful, usable, desirable, efficient, effective and the extent to which the outcome is one that humanity can live with.

Time: 15 minutes 40 seconds

Interviewer: Well that leads to the question, what do you consider an improvement? How do you make the judgements about, when you have been through a design project or a design process whether the outcome is actually an improvement?

Sean Blair:

Time: 16 minutes 01 second

[8.5.6] For me relationships matter a lot to me so one way that I would judge as to whether there has been an improvement, '*Are the relationships better or worse?*' If the human beings in the room understand each other slightly better, respect each other slightly more, have more knowledge that they might be able to do something useful with then that's probably a good outcome.

Time: 16 minutes 45 seconds

[8.5.7] In a service design project an outcome might be to increase revenue and improve customer experience. I think the outcome question is very difficult I mean that is why when we conceived of the DIEC we put a consequences lab

as a concept into that because we live in a very fast society on a 4.2 million year old ping pong ball and it depends when you try to look at an outcome, I think to answer the question properly, it's very complex.

Time: 18 minutes 39 seconds

[8.5.8] Maybe there needs to be a qualification of types of outcomes, long term environmental or human spiritual outcomes are they good or bad, if they're quashing the human spirit or damaging people or the planet it's probably bad, if it's just a dent in the ego or short term pollution which is ultimately fairly harmless, so I suppose one needs to, a bit, one needs to be able to think about consequences and outcomes in some kind of hierarchy, some things are more important than others.

Interview Template Question Six

Time: 19 minutes 33 seconds

Interviewer: How do you judge your personal involvement within a project in that case? When you look back at a project how do you know if you've done a good job?

Sean Blair:

Time: 20 minutes 22 seconds

[8.6.1] How I would judge my own success or failure I think is related to the extent to which people came willingly on the journey and enjoyed it.

Time: 21 minutes 18 seconds

[8.6.2] It seems to me that in complex design projects the extent to which one is a good or bad participative leader will make a qualitative difference to the way the other humans will engage on the project and the kind of work that they will do with the quality of engagement that they are afforded, so a sincere and honest and clear of allowing people to engage probably creates those places of safety and groups can do extraordinary things together.

Interview Template Question Four

Time: 24 minutes 02 seconds

Interviewer: And what is important?

Sean Blair:

Time: 24 minutes 20 seconds

[8.4.1] I don't know, to feel really human and really alive.

Time: 27 minutes 07 seconds

[8.4.2] The way I am meaning it is to be as present to life with its ups and its downs, not necessarily to be ok with it. I suppose my experience over the last couple of days when I have been ok with it is to take time in the moment to enjoy it and know that you're enjoying it, I think that is part of living fully. So there's an awareness I think of, that's been happening, the ability to reflect and either enjoy or not enjoy, so reflection in the moment maybe.

Interview Template Question Seven

Time: 28 minutes 27 seconds

Interviewer: My next question I am going to change, but it was, what are the important qualities for a designer to have. Now I am going to change that to, and I think you have answered the first part, what are the qualities of a design facilitator or a leader of participation, that's the bit I think you have answered a little, and the second part of the question is, what are the important qualities of a participant?

Sean Blair:

Time: 29 minutes 27 seconds

[8.7.1] One quality is the extent to which the participative design leader/facilitator really owns and understands the problem, *'It's my problem and I want us to fix it'*.

Time: 29 minutes 40 seconds

[8.7.2] I think clarity is a very important quality in order that people are clear on what's happening, what objective are we working towards, how are we doing it, do we have sufficient time and resource to be able to do it. So therefore, another quality is to be able to lead people through a process and at the same time gain their trust that the process will work or be fleet of foot enough to be able to change the process if it's not working.

Time: 29 minutes 40 seconds

[8.7.3] The qualities are clarity, ownership and something like trust, confidence is something around that field, I think some qualities around let's call it enthusiasm or being properly positive.

Time: 32 minutes 04 seconds

[8.7.4] Belief that, there's a better answer, that the work is worth doing, that something good will come out of it.

Time: 32 minutes 42 seconds

[8.7.5] For the participant, critically, a willingness to be there. 'Openspace Technology', the guy that wrote that book Harrison Owen says that voluntary self-selection is mandatory, you can't get people into a room and process them they have to want to be there so the extent to which they want to be there, the extent to which they are free to leave if they don't want to be there. Other qualities of a participant, I think the extent to which they feel safe and secure to resonant with that again, the extent to which they are clear, the extent to which they are open and flexible as opposed to coming to something with a fixed view and selling it. Another nice thought from Harrison Owen is be prepared to be surprised so a sort of openness

Interview Template Question Eight

Time: 34 minutes 15 seconds

Interviewer: How do you develop your practice?

Sean Blair:

Time: 34 minutes 51 seconds

[8.8.1] The extent to which I am confident that my practice has a good theoretical underpinning.

Time: 35 minutes 00 seconds

[8.8.2] My MSc was based upon reflective research paradigm so I have an inquiring mind.

Time: 37 minutes 54 seconds

[8.8.3] I guess another way I try to develop my practice is to be more reflective, *'Ooh that was interesting; I wonder why I did that?'*

Interview Template Question Nine

Time: 40 minutes 04 seconds

Interviewer: What are the difficulties that designer encounter?

Sean Blair:

Time: 40 minutes 30 seconds

[8.9.1] Someone who has been to arts school and learnt to be a designer, what are the problems they have, for some reason my mind is thinking about young designers I think some of the problems I first had when I first started is that I didn't really understand the complexities of production and I think maybe that's a generic answer. It's a kind of, it's a kind of complex world and sometimes we think we know the answers and maybe an other problem is to be a good designer you have let's call it a degree of vision, you see a thing and think you can make a better thing and you've envisioned that thing and you've gone through a process and I think that can be a problem because either you don't have the skills to bring the vision to life because that's quite a hard thing to do or you're misunderstood or your visions wrong or you're a head of the time. I mean service design is an interesting proposition it's, the world's not quite ready for it yet or we haven't found a way of articulating it yet in a way that the world has really bought it yet but that wouldn't have been unfamiliar in the early days of the Bauhaus. I mean I think that's a familiar experience for many designers the extent to which they have the technical competency be it in product or humans to propose something clearly enough that other people understand it and wish for it to that can be a problem.

Time: 42 minutes 51 seconds

[8.9.2] Well, design isn't taken seriously by quite a few people. The perception of what design is, for many people engineering is a serious discipline done by men with beards and rocket scientists and design can be a fluffy thing you know funny shaped chairs and websites that people can't use so a problem can be what the perception of what design is.

Time: 43 minutes 52 seconds

[8.9.3] The extent to which some of the more complex factors in the world in the world of commerce... Is it any surprise that accountants end up at the top of companies, no it's not, I mean money is the language of business and if you can't speak that language you can't play that game so we might have invested so heavily in acquiring one language skill set that we're not fluent and competent and capable in other languages, human languages, money languages so that can be a problem

Interview Template Question Ten

Time: 44 minutes 29 seconds 44.29

Interviewer: What are the situations that put you in greatest turmoil?

Sean Blair:

Time: 45 minutes 04 seconds

[8.10.1] The things that have put me in the most turmoil over the last few years are when relationships don't work. I feel very troubled by breakdowns of trust and disrespect and yeah, humans hurting each other either because they wish to or they are ignorant of the consequences of their actions I mean yeah I get really troubled.

Time: 46 minutes 51 seconds

Interviewer: When is it that you feel most dissatisfied, then, is it in those situations or are there other things that lead you to feel dissatisfaction?

Sean Blair:

Time: 47 minutes 04 seconds

[8.10.2] Sometimes I make myself feel dissatisfied because I feel I should be cleverer than I am, sometimes I, dissatisfaction is an interesting choice of word, when do I feel dissatisfied, something about recognition there's a relationship between recognition and satisfaction or dissatisfaction. I have recently been strongly and warmly recognised for things I have done well and therefore I feel very satisfied and there are other times when I have done things I think exceptionally well and not be recognised for those or valued for those and I have felt dissatisfied and in turmoil, I think that is an important one.

Interview Template Question Thirteen

Time: 48 minutes 19 seconds

Interviewer: Do the different sorts of activities you undertake require you to function in mentally different ways?

Sean Blair:

Time: 48 minutes 54 seconds

[8.13.1] In this dialogue my mental mode is that my brain is going quite quickly I suppose but quite deeply too so it's a mode about really present really grounded thinking I notice that it's quarter to two and that time has gone very quickly so that's one mode and for me personally it's a absolutely delightful mode. In a meeting where, the one I described yesterday, the mode is very different to that it's much faster and more fleeting, trying to calculate the dynamics of the people in the room, to try to know when to lighten through humour or challenge through conflict or join in or avoid or, so that's another mental mode. I have a boring mental mode where I just have repetitive tasks to do, I've been doing one of those this morning. I suppose there is an exciting and creative mental mode. Sometimes and I noticed this first when I was at the Design Council one day I was writing a speech for a conference I was talking at and as I was typing the speech I was literally falling asleep, *'Oh god this is going to be awful my own speech that I am writing is sending me to sleep'* and I literally just tore it up and started again and the way I stayed awake was to be fun and provocative and play with it and sometime that is another mental mode.

Time: 51 minutes 02 seconds

Interviewer: Do you think that through being involved in design it has changed the way you experience the world in general?

Sean Blair:

Time: 51 minutes 57 seconds

[8.13.2] I think that I see possibility

Interview Template Question Three

Time: 55 minutes 16 seconds

Interviewer: That's great thank you and my final question is what's your key challenge?

Sean Blair:

Time: 56 minutes 11 seconds

[8.3.1] Believing in myself enough that a path I want to pursue is right. Key challenge, what is my key professional challenge? It's funny in some ways I am less ambitious than I used to be, there have been times in life when I have been really quite ambitious, one of the nice things about being at this stage and age in life is that I don't have to look too hard to find interesting things to do they seem to come and find me, I lead quite a comfortable professional existence. So I am just interested that I am not coming up with a Richard Branson scale '*My big challenge is to*' and I think I currently feel ok with that. Another important thing about answering that question is I have gone through a very challenging patch in my personal life and my little boy who is two he and my ex-girl friend moved out a year ago and last year was a shit year so I have been incredibly challenged personally and I haven't really had the capacity for really huge sort of professional challenge. Some people might argue that to set up a new company in the middle of that [was a big professional challenge], but for me strangely enough it was easier than carrying on with some people I wasn't really comfortable with. So the key challenge for me at the moment is, this is a Koan like answer, my key challenge is to find my key challenge or to let my key challenge find me. I have always had some kind of belief that I was here to do something important and useful and maybe that's ego, who knows, and I certainly don't feel that I have achieved that yet. So my key challenge feels more like a personal challenge is to navigate my life, the personal part of my life, into enough of a sort of calm waters that if I wanted to go off in some more professional adventures I can, I think that is my key challenge.

4.3 – Chapter Summary

The purpose of this chapter was to present the data from the study's eight case studies. This chapter acts as a partner chapter to Chapter 5. Chapter 5 uses the data codes in a data analysis of the conjectures presented in Chapter 3. As such this chapter acts as a reference base for the reader to relate the codes discussed in Chapter 5 to specific pieces of data and the interview excerpts that they represent.

CHAPTER FIVE - Data Analysis

A data analysis of the study's conjectures

5.1 - Chapter purpose

The purpose of this chapter is to move toward addressing the study's broad aim and help increase understanding of designing as it is experienced. The first objective, of Chapter 5, is to illustrate which data sections support and which refute the study's conjectures. The second objective is to subject the study's conjectures to a discourse analysis, leading to the study's findings: descriptive statements portraying the design experience.

5.2 – Data analysis process

As highlighted by Miles and Huberman, cited in Robson (2002: 475), there are three components of data analysis: data reduction, data display, and conclusion drawing and verification. In line with this study's epistemological stance the last component of data analysis, in this study, is considered to be: data testing through refutation attempts and conclusion drawing. Data reduction occurs as a consequence of the analytical choices the researcher makes to manage data. In this study, pre-data collection data reduction decisions include: sampling decisions, replication logic and the selection of cases to study; the development of theoretical conjectures; and the questions used to structure the interviews. Further data reduction occurred, in this study, in the translation from the full interview transcripts to the data presentation. Chapter 4 presented excerpts from the interview transcripts as the study's data. Each piece of data is coded. Those codes are used in this chapter to refer to specific pieces of data. In this chapter the analytical process moves toward conclusion drawing through four steps: data identification, data display, discourse data analysis and analytical findings presentation. Section 5.2.1 describes the conjecture testing process in more detail. Chapter 6 continues the conclusion drawing aspect of the analysis process, discussing the study's findings in the broader context of design theory and making the study's contribution to new knowledge explicit.

5.2.1 - Conjecture testing process

Data Identification

- Data pertinent to the conjecture or conjecture stage are identified through two searches. The first search reviews each case locating data supporting the

conjecture or conjecture stage and the second search identifies data refuting the conjecture or conjecture stage.

Data Display

- Data matrices are used to format and illustrate the findings of the data identification process.

Discourse Data Analysis

- Each conjecture contains two discursive analyses. Data that supports and data that refutes the conjecture are considered separately;
- The aim of the discursive narrative is to critically consider the relationship and implications that the identified data has to the conjecture or conjecture stage;
- Where identified the analysis strengthens the argument highlighting similarities across the cases in a form of triangulation;
- Plausible rival theories are forwarded as suggested by the data;
- Direct and indirect data are discussed. Direct data are those interview excerpts that appear to relate to the conjecture and its context directly, whereas indirect data is considered relevant to the conjecture by implication.

Analytical Findings Presentation

- Resulting from the analytical process, statements, relating to the experience of designing, are presented. The findings are categorised as either tested by the data analysis or suggested through the data analysis.

5.3 – Conjecture One testing though data analysis

5.3.1 – Conjecture One data matrix

This section presents the data relevant to Conjecture One. The basic premise of conjecture one is: the tone of expert designers' experience unfolds through a spectrum of emotional tone phases over time with their designing activities. Conjecture One, presented in Section 3.4.2, forwarded the conjecture's basic premise and detailed that premise through five stages. Each of the conjecture stages details different emotional tone phases and their conditions. An examination of the conjecture stages describes the emotional tone phases as: (stage 5) certainty and joy, (stage 1) optimism and excitement, (stage 2) uncertainty and fear, (stage 3) frustration, and (stage 4) dread and mental paralysis. In this section each of the conjecture stages are analysed separately. Table 5.1 presents and categorises data as either conjecture confirming or

conjecture refuting. Data are also ordered, in Table 5.1, to indicate which of the conjecture stages they relate to.

Table 5.1: Conjecture One data matrix

Data codes refer to interview transcript excerpts coded and presented in Chapter 4

Conjecture One Stages	1	2	3	4	5
Conjecture	1.2.1	1.12.2	1.13.10	2.9/10.1	1.12.3
Confirming	1.2.7	1.13.1	2.4.3	4.9.5	1.12.6
Data	1.4.2	1.13.2	2.4.4	4.11.3	2.3.6
	1.12.4	2.3.7	2.4.5	6.11.3	2.4.3
	2.11.4	4.13.1	2.11.7	6.12.2	2.4.5
	3.7.1	4.13.2	2.11.8		2.5.4
	4.3.1	8.7.1	4.3.4		2.12.2
	4.9.4		4.3.5		3.12.1
	6.9.3		4.3.6		4.3.3
	6.9.4		5.6.2		4.3.4
	6.11.1		6.1.1		4.11.1
	8.7.3		6.9.1		4.11.2
	8.7.4				4.13.1
					6.9.1

Conjecture Refuting Data	1.9/10.1; 1.9/10.2; 1.9/10.4; 1.13.9; 2.8.5; 2.11.2; 4.6.1; 4.9.1; 5.10.1; 5.10.2; 5.10.3; 5.12.1; 5.12.2; 6.12.2; 8.2.4; 8.6.2; 8.7.2
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5.3.2 – Data supporting Conjecture One

What follows is a discourse analysis of Conjecture One. The data sections presented in Table 5.1 are discussed and considered in order to test the validity of the conjecture. To aid the analysis the conjecture has been divided into five stages, each stage is considered separately to aid clarity.

Conjecture One - Stage One

Expert designers are optimistic about their ability to resolve design problems, see problems as opportunities and begin their task with positive excitement.

There are three components to Conjecture One Stage One, which describe the frame of mind with which expert designers face their professional challenges. Below is a discourse analysis and presentation of the data supporting and pertinent to Conjecture One Stage One.

In data section 6.9.3, Brown, T. remarks upon the importance of optimism for designers and the frustration that designers can experience when other people do not share that optimism.

There's a sort of optimism that designers have to have, you have to be optimistic that you can solve the problem and the rest of the world doesn't always have that optimism and that can be frustrating, there's a scepticism and pessimism about the world that many people have that many designers can find frustrating (Brown, T., 6.9.3).

Brown, T. explains the importance of optimism in data section 6.11.1.

At one level if you're not feeling [good], and again it's back to this optimism thing, if you're not feeling good about what you're doing then you don't do good work. So that's one thing. A lot of what we do is reach people emotionally through the design that we do and therefore you have got to open your emotions up to what it is you're doing, you can't just rationally... I think where design can get itself into trouble, sometimes, is when it's overly rational and a lot of the best designers I know just kind of intuit what the right emotional stance around something is, they can't tell you why it is and you can't often talk about emotions that way they just do, they just know it and so, yeah, emotions are pretty important, if you're feeling pissed off it's hard to do something that's joyful (Brown, T., 6.11.1).

Blair, S. reinforces the importance of optimism when he described the qualities of a participative leader. Blair, S. stated that it is important that there is 'belief that there's a better answer, that the work is worth doing, that something good will come out of it' (Blair, S., 8.7.4).

Data sections 1.2.1 and 1.2.7 capture the optimism that designers hold about their ability to solve problems and about the value their work. McCullagh, K. states, 'what motivates me about being involved in product design is that it's, it is contributing to progress, hopefully, and making the world a better place in very small ways' (McCullagh, K., 1.2.1). Delaney, M. remarks that:

[...] As a designer you need to be quite passionate about solving things and I think that most designers want to do things well, they want to create a better world, they want to do better things, they want stuff to be better, for whatever reason (Delaney, M., 2.11.4).

McCullagh, K., in data section 1.12.4, says 'I think being excited about the project is important' and in data section 4.9.4, Stokes, A. made the simple point that designers tend to be enthusiastic. Blair, S. (8.7.3) also highlights the importance of being confident, positive and enthusiastic.

When describing what design is for, Stokes, L. highlighted the necessity for designers to see problems as challenges, stating that:

Problem solving is part of the experience and not necessarily seeing problems as problems it's an ability to see a problem as a challenge rather than a problem as a problem, so I think good designers are the people who see opportunities in problems and that's a fundamental differentia (Stokes, L., 3.7.1).

McCullagh, K., in data section 1.4.2, also supported the idea that designers focus on opportunities rather than problems, he talked about framing the issues and opportunities to 'generate clarity at the front end' when discussing the design problem with clients.

The excitement a designer feels at the start of a project appears to be about the opportunities they see in the design challenge. This in itself is a framing activity, which is a point made by Brown, T. in data section 6.9.4: 'great designers know how to make every project cool' (Brown, T., 6.9.4). Stokes, A. (4.3.1) makes the point that for him design is both selfish and idealistic; it is selfish because designing provides gratification and immense pleasure and idealistic because he considers his client to be the people who use the products he designs and he works hard on their behalf.

Conjecture One Stage One has three components that describe the mental attitude with which expert designers face their professional challenges. The idea that designers are optimistic about their ability to solve design problems was supported by three of the cases. Data from the Brown, T. and Blair, S. interviews directly supported the claim and data from the McCullagh, K. interview indirectly supported the claim. Four of the cases supported the idea that designers begin their tasks with

positive excitement. Delaney, M. described designers' passion for solving problems, Stokes, A. talked about designers being enthusiastic, McCullagh, K. stated that it is important that designers are excited about their projects and Blair, S. highlighted being positive as an essential quality in design activities. Two of the cases explicitly illustrated that designers see problems as opportunities. Data from the Stokes, L. interview directly confirmed this view and data from the McCullagh, K. interview was strongly suggestive of the truth of the idea.

The uncertainty of the design situation opens up the exciting opportunity to achieve a positive result through the activities of design and to achieve positive re-enforcement of the designer's professional identity. However, the uncertainty of the design situation also opens up the possibility of poor performance undermining the designer's professional identity. Conjecture One Stage Two highlights the experience of that negative possibility.

Conjecture One - Stage Two

As expert designers engage with a professional context that is uncertain, ill structured and ambiguous they personally experience uncertainty. As the uncertainty of the challenge is grasped, fear develops about their ability to resolve the design problem's issues and exploit its opportunities.

In data section 8.7.1 Blair, S. states that it is important that designers really own the problem. In order to own the problem designers must develop a clear understanding of the issues and the clients' requirements and expectations. To achieve a clear understanding of the design problem McCullagh, K. (1.13.1 and 1.13.2) describes his willingness to listen, to empathise with the client and his efforts to keep asking questions until completely satisfied.

Data sections 1.12.2 and 2.3.7, which support Conjecture One Stage Two, capture the emotional tone of experience in the early phase of a design project for McCullagh, K. and Delaney, M.:

Often the first month or so you're kind of stabbing away and it's all a bit hazy and you're a bit worried you're going in the wrong direction, there's some really niggley bits of things that we just can't get to the bottom of and all that

sort of stuff which... there's always that uncertainty at the start of a project '*Are we going to be able to pull it out of the bag this time*' (McCullagh, K., 1.12.2).

Even now, after God knows how long that you're doing it, whenever you get a project in there's still a little bit of panic at the start of it, '*Shit, I don't know what I am going to do, I don't know what the answer is*', and that's, that fear is quite enjoyable. I think the moment I lose that fear is the time that it's like time to give up! (Delaney, M., 2.3.7)

In data sections 4.13.1 and 4.13.2 Stokes, A. reminisces about his design training and early professional career. Data section 4.13.2 has relevance to this stage of the conjecture as it captures Stokes, A. description of his experience prior to achieving a creative event:

It would be a really nervous process, I really felt scared by the project and could spend quite a lot of time going through the motions just filling sketch pads and being fairly uninspired (Stokes, A. 4.13.2).

Three of the cases directly illustrate the uncertainty and fear that expert designers experience as they comprehend their current design challenge and consider their ability to exploit its opportunities and resolve its issues. Data from the interviews with McCullagh, K., Delaney, M. and Stokes, A. all directly support Conjecture One Stage Two. Data from the Blair, S. interview indirectly supports the idea that expert designers experience uncertainty as they engage with their professional context in that this is assumed to be an aspect of the personalisation that 'really owning the problem' suggests.

Conjecture One - Stage Three

Iterative attempts to develop solutions can lead to frustration as the expert designer assesses his/her propositions as inadequate for resolving the design challenge.

This stage of Conjecture One indicates that an expert designer's solution generation activities are explorative and attempts to conceive and develop successful design propositions is a frustrating activity as most efforts result in brave failure.

Brown, T. defined design as 'a form of problem solving that relies on the synthesis of insights, [...] [forming] patterns that create [...] unexpected holistic concepts

which you make tangible in some way and those tangible things have an impact on some people' (Brown, T., 6.1.1). Later in that interview, in a data section that supports Conjecture One Stage Three, Brown, T. states, 'design problems are incredible complex and it's hard to see those patterns sometimes and that's frustrating and hard work' (Brown, T., 6.9.1).

Data sections 2.11.8 and 1.13.10 illustrate the emotional fluctuation and disquiet that accompanies expert designers' solution generation. Delaney, M. highlights the extremes between the frustration and anxiety that keeps him awake at night and the joy and excitement of and following a creative event.

Often I will find myself really frustrated, you'll find yourself not being able to sleep at night and all of those really crappy things and people tend to think of designers as all sat around drawing boards having a whale of a time, it isn't like that all the time, at times it is, when you do make that break through and you do get it right, it's like 'Yes' and it is a very pleasant feeling. So I think that often the design process can be a real emotional roller coaster ride (Delaney, M., 2.11.8).

McCullagh, K. describes solution generation and analysis within a team situation. Data section 1.13.10 indicates that designer's can move through the emotional phases rapidly as new material and possibilities are generated, as their consequences are considered and as people argue the merits and value of particular propositions.

Then it's coming up with ideas, filtering, you know, which is quite a hot and cold thing, up and down thing, where you'll feel passionate about some and you'll hate others, you'll be indifferent about others, there'll be arguments, people will disagree, it's a bit of an uncomfortable phase (McCullagh, K., 1.13.10)

Searching for better ideas, trying to generate the right ideas, is a difficult task and a crucial part of a designer's role. Data section 5.6.2 indicates that a designer's role is not to develop a solution but to explore the design situation attempting to propose the best solution for the conditions of that situation. Additionally the data indicates that a challenging aspect of design activity is the exploitation of a situation through the successful execution of imaginative propositions, which fulfils (or exceeds) the stakeholders' expectations. Kyffin, S. makes the following point:

Coming up with ideas is pretty easy; making them reach the other end of the net is not easy. Ideas are two a penny at one level, even though people say,

'How do you have ideas', ideas is not the problem, making them the right ideas, better ideas is a problem and you can only do that if you have reference points to judge better-ness against and then successful exploiting them (Kyffin, S., 5.6.2).

Stokes, A., in data sections 4.3.4, 4.3.5 and 4.3.6, also describes this situation. Describing the passage from a creative event to successful exploitation Stokes, A. highlights the necessity of both the moment of insight and the ongoing effort and worry that goes into ensuring that the creative event is not ruined in the delivery of its commercial physical articulation.

As a student you have no self-confidence, in fact, when you have been practicing for 30 years you still haven't, but you learn that under certain conditions something will happen and when it does it's life enhancing. *'Where did that come from'*? Creative people talk about that moment and it's a fact (Stokes, A., 4.3.4).

Subsequently there is a huge amount of worry to turn that moment into a finished product. Without that moment there would be no successful products and without that worry there would be no successful products (Stokes, A., 4.3.5).

There are all these opportunities to ruin that moment but when people use the product you have designed and acknowledge that it is better than the one they had before that is very rewarding (Stokes, A., 4.3.6).

Iterative attempts to develop solutions can lead to frustration, but in data section 2.4.3 Delaney, M. remarks upon the vital importance of asking 'hard questions' and if design propositions do not answer those questions being prepared to tear them up and have more. Designers need to be able to ask and honestly answer those hard questions; designers need to be willing to return to a state of frustration and uncertainty and its accompanying opportunity for failure. Being honest also means being able to recognise when someone else's ideas are better or more appropriate than their own, which can be difficult as data sections 2.4.4, 2.4.5 and 5.10.3 highlight. Delaney, M. highlights, in data section 2.11.7, the motivational role that negative emotions play in designers' processes. Frustration, according to this data, can be positive within the design process, it can help designers to push themselves, to keep on generating solution propositions, to keep on trying and to strive for betterment.

I think designers are inspired by quite negative emotions, you know you're really frustrated with something and you want to design it better, or you're just

frustrated with the way things are going and you need to solve it, you cannot let it go until you solve it, you know I think any creative act involves a bit of pain, you've got to give a bit (Delaney, M., 2.11.7).

The idea that iterative attempts to develop solutions can lead to frustration as the expert designer assesses their propositions as inadequate at resolving the design challenge is directly supported by two cases. Brown, T. and Delaney, M. both describe the frustration that precedes a creative breakthrough. Data from the McCullagh, K. interview while not describing the experience of frustration does describe the solution generation activity that this conjecture stage refers to. McCullagh, K. describes this activity as an uncomfortable phase and the data is viewed as a description of a design team moving through the emotional phases of the design experience. While this data does not directly support the conjecture stage it does support the conjecture's basic premise. Two cases indirectly support the conjecture stage. According to Kyffin, S. successfully exploiting ideas, taking ideas successfully through to realisation is difficult, and generating and identifying those ideas is challenging. It is assumed that this is a frustrating activity as most ideas are assessed as, or turn out to be, inadequate. Stokes, A. describes the journey from the creative event to the successful commercial execution of a product. Through his description of the opportunities to ruin the moment of the creative event it is assumed that the iterative attempts to articulate that moment's insight is frustrating. Data from the Delaney, M. interview suggested that negative emotions including frustration could be utilised by designers to positively contribute to their design practise.

Conjecture One - Stage Four

Over time, if solution propositions continue to be assessed as inadequate, dread is experienced as the expert designer questions his/her ability to resolve the design challenge. Mental paralysis can occur after this stage where the expert designer is unable to further explore the design situation.

Solution propositions can be assessed as inadequate in different ways. The designer can assess an idea as inadequate, the articulation of an idea as inadequate or the commercial realisation of the idea and its articulation as inadequate. Additionally, internal or external stakeholders (including, for example, members of the design team, design management, clients, or user responses) can assess an idea, its articulation or

its commercial realisation as unsatisfactory. Delaney, M. describes the experience of having a design proposition judged as inadequate, the frustration that results from an unclear explanation of that judgement and the stress and dread that accompanies the uncertainty about how to move the project forwards:

I think the worst situation to be in is when you're working for a client and you're doing a design, which you think is good, you're really pleased with it and you think it's bang on right and the client just goes, '*I don't like it*'. And then often what you'll find is that the client can't articulate, to you, why they don't like it in anyway that is useful. And that is the worst, I think that's the most stressful situation because when you're placed in that situation, you're like, '*Shit we've got to pull something else out the bag here, and I don't quite know which way to go because I have gone the way I thought was right and now for whatever reason that's wrong and I am trying to balance, like get the client to understand this, but also that I'm open to his suggestions but he can't communicate to me what he wants, he's getting aggressive with me*', and you just have to, and at times that can get very stressful (Delaney, M., 2.9/10.1).

Data section 6.12.2 highlights two issues. Firstly, mental and emotional fatigue prevents designers from having good ideas, this data refutes this conjecture stage and will be discussed in the next section. Secondly, that the extremes of emotion, being scared and frightened, prevent people from effectively undertaking the creative process of design. Brown, T. talks about the fitness that the creative process requires:

You actually have to look after yourself and that... and I believe that's true of everybody but I think there's something about the creative process that requires your brain to work pretty hard and it has to be open to certain things and so you can't be scared and frightened. If you're scared and frightened you can't design, you can't be in too much of a hurry all of the time or you can't design and you kind of need to be fit, mentally fit and physically fit [...]. There are lots of people in my organisation who are insanely fit human beings and I think it makes a difference. So there is something in being in a good state of mind and state of body that does help you be creative. I mean you see it in people who have been working too hard for too long they just stop having good ideas (Brown, T., 6.12.2).

The necessity of emotional management is evident in the data. Data section 4.9.5 describes the need for emotional management. Stokes, A., in data section 4.9.5, describes himself as quite excitable and remarks upon how important regular exercise is for him in regulating his anxiety levels.

I am quite excitable and I use exercise and the discipline it requires, to help bring everything into perspective and more able to cope. Every morning before

I start work I run or go to the gym and in the evening, walk. Without this outlet then I can become pole-axed into anxiety induced inertia (Stokes, A., 4.9.5).

The data suggests that expert designers have developed tactics and gambits to help manage the effect that strong levels of anxiety has upon their design practise. Data section 4.11.3 describes the simple act of taking a refreshing break and walk as helping alleviate mental paralysis and describes how being able to switch between projects means that when one is blocked you can progress another and return to it later. In data section 6.11.3, Brown, T. remarks that it can be dangerous for designers to always work intuitively because they rely upon their emotions always supporting their activity. For this reason Brown, T. is an advocate of design tools and methods that designers can use to continue and help stimulate the process when a designer's investigation has lost impetus.

Supporting data for Conjecture One Stage Four can be found in three of the cases. Data from the interview with Delaney, M. supports the idea that dread is experienced if solution propositions continue to be assessed as inadequate. In the excerpt from Delaney, M. the experience is exacerbated by the confidence he had in the solution proposition being presented and by the presumed fact that to get the design work to this stage required a great deal of effort and the rejection of many other alternatives. This data from the Delaney, M. interview does not comment upon mental paralysis. Data from the interview with Stokes, A. does highlight that inactivity can be caused by anxiety; however, the data is not specific in linking the anxiety to continuous assessment of solution propositions as inadequate. Data from the interview with Brown, T. both supports and refutes this stage of the conjecture. The data supports the idea that dread prevents people from designing. The data also suggests that mental paralysis has other causes that may be more common to the experience of designers. This point is discussed in Section 5.3.3.

Conjecture One - stage five

A creative event, which can occur at any point in time and at any reflective practice stage, transforms the tone of an expert designer's experience. Creative events differ in their significance and effect and are the moments of realisation when an expert designer reframes his/her situation of practice. The experience of certainty and joy accompanies creative events, which are seen as uncertainty resolving, and return the practitioner to a state of optimism and excitement.

Data sections 4.11.1 and 4.11.2, taken from the interview with Stokes, A., are illustrative of minor creative events. This data sections highlight how these creative events boost a designer's confidence in their ability and how debilitating it can be if confidence is undermined:

Emotions, I would say they are a huge factor. The feeling of moving things on, making the simplest decision about a detail which just makes sense; that moment can lift me through the next three or four hours of numb average-ness, it can make me believe in myself which is terribly important (Stokes, A., 4.11.1).

It's amazing how confidence can desert you; emotions are very fickle, lifting your mood sky high or just shutting you down. At those moments you never look at the bigger picture, 30 years of achievement for example, you always just think, *'Oh god I'm in trouble'* (Stokes, A., 4.11.2).

Data sections 1.12.3, 1.12.6, 2.3.6 and 3.12.1 all in different ways describe the 'buzz' experienced by designers during their professional activities when things are going well. At these times, according to this conjecture, designers should report creative events; data section 1.12.3 supports this commenting that 'everyone understands' and 'everyone is having ideas'; data section 1.12.6 illustrates this with the comment 'we can resolve this brilliantly, by'; and data section 2.3.6 supports this claim in its illustration of the transition from struggle to the realisation that 'you've got it' and 'know exactly what to do'. Delaney, M., in data section 2.12.2, also reports a similar positive experience and then contrasts it with the negative experience of frustration and stress resulting from taking on a greater workload because some of the team are not able to work at their normal capacity:

I think when it's going well you've got this, everyone's working hard, everyone is focused and driven and you've got this almost, you've got this tunnel vision of what we've got to do, here's what we've got to achieve, here's when we've

got to achieve it by, here's the things we've got to deal with coming in from left and right and you almost get into the zone you sort of, and that's a very positive thing and there [are] times when it's not going so well, when perhaps you've got people on the team who aren't pulling their weight, or just can't pull, or can't do it or can't pull it out of the [bag], and that's, that can be very frustrating and then you find you take on more than you can chew and things don't go so well and designers I think are often very personal about their work so you tend to blame yourself if things aren't going right and then everyone gets frustrated with everyone else and it's quite negative, you know that's the nature of creative work (Delaney, M., 2.12.2).

Minor creative events can be contrasted with major creative events described in data section 4.3.4 as 'life enhancing moments' and in data section 4.3.3 as 'the drug of design'. Data section 4.3.4 illustrates the worry, concern and frustration experienced by the designer as they attempt to commercially realise a design that was initiated in a special event. These events can occur after intense effort (2.3.6, 4.13.1 and 6.9.1) or can occur easily; data section 2.5.4 describes the moment of recognising exactly what the solution is upon contact with the brief. Data sections 2.4.3 and 2.4.5 illustrate how after exploring the consequences of the content of a creative moment, the ideas and their visualisation can be assessed as inadequate for satisfying the design situation, which results in a return to uncertainty and frustration in the search for better and more appropriate ideas.

The idea that a minor creative event resets the emotional phases but lacks sustenance is best illustrated in the interview with Stokes, A. when he says 'making a decision which just makes sense, that moment can lift you through the next three or four hours of numb, of averageness'. Other cases that support the idea that creative events are experienced and associated with joy, optimism and excitement are McCullagh, K., Delaney, M. and Stokes, L. with their descriptions of passages of activity where they feel a euphoric buzz, which appears supported by appropriate ideas, focus and drive. Two cases described major creative events during which the designer knew, with certainty, what the design solution's direction was and how to pursue it. Stokes, A. went beyond a description of the creative moment, describing the concern and worry that are required to materialise what began in a major creative moment as a commercial reality.

5.3.3 – Data refuting Conjecture One

This section considers data that refutes Conjecture One. The study's data indicates four themes that are not addressed by, but relevant to, Conjecture One. Firstly, the data indicates that designers, to design well, require a degree of inner peace and contentedness. Secondly, there is data that suggests that committing to ways of framing a situation and committing to specific solution propositions generates the experience of uncertainty and fear. Thirdly, there is data that suggests that high levels of excitement can disrupt good design practise as the designer loses perspective. Fourthly, the data suggests that there are events that occur during the design process that generate the experience of chaos and heightened uncertainty for the designer.

In data section 4.9.1 Stokes, A. claims that designers rely upon a degree of peace, or as Kyffin, S. stated self worth, security (5.12.1) and contentedness (5.12.2).

I think the best guidance I could give is to be happy. If instinctively you don't feel at ease then everything else will be hard work. The mere act of turning up to an office to work in an environment when you're not happy is soul destroying; once in that position it can be impossibly difficult to extricate yourself, the costs to you and others becomes too great. Designers require a high degree of inner peace and I spent many unhappy years grappling with the problems I had created or allowed to arise (Stokes, A., 4.6.1).

Blair, S., in data sections 8.2.4, 8.6.2 and 8.7.2, describes that for creative participants it is important to create places of safety and security, which helps them engage in design processes more willingly, more openly and with less fear. These data sections resonate with Brown, T's. comments (6.12.2) that if you are too scared or frightened you cannot design. Conjecture One describes the emotional phases of certainty, joy, excitement, uncertainty, fear, dread and mental paralysis. Perhaps it is important that designers have a degree of peace, of contentedness, of stability in order that they can positively engage with the emotional phases that accompany and are part of explorative design.

McCullagh, K., in data section 1.13.9 describes a 'crunch time' where he and the design team commit to a specific standpoint around the interrogative and explorative activities that have been undertaken and explicitly state and pursue a particular direction. This is a necessary step in focusing further idea or solution generation, but it requires courage to standby sets of judgements and ideas that define a specific

viewpoint and one's belief in that direction's 'fitness' and appropriateness. This passage of intellectual and emotional judgement according to McCullagh, K. is where 'you always get a knot in your stomach'. This data section describes a stage in the design process where the design development, to move onto a further phase, requires one direction to be committed to from amongst the possible and plausible proposals presented by the participating design team. When considering the different levels of complexity that a proposal goes through from a mental insight through to a commercial reality there will be numerous instances of commitment. If this process requires a brave step then commitment and the uncertainty and worry that accompanies it in a designer's practise would appear to be a significant element within their design experience that is currently absent from Conjecture One. It would appear that as well as uncertainty and fear being generated by assessing propositions as inadequate the commitment to move from one phase of exploration to another also induces uncertainty and fear.

In its current format the conjecture suggests that the emotional phases are consecutive, which means, for example, that paralysis cannot be experienced without experiencing dread, this is a weakness of the conjecture. Brown, T., in data section 6.12.2, suggests that mental and emotional fatigue and tiredness prevent designers from working well, 'they just stop having good ideas'. Conjecture One does not include this element of the design experience and would be strengthened through its integration. In data section 2.11.2 Delaney, M. made the point that over excitement can lead to a lack of focus and perspective.

It is a profession it's not an artistic vocation it's a profession so you need to be able to control your emotions you need to be able to channel them, you need to make them work, obviously there are certain projects where you get excited and carried away and you go off down wrong paths, but you need to be able to rein those in and pull them back (Delaney, M., 2.11.2).

The conjecture is better understood if the emotional phases are viewed as opportunities. Design practise provides the opportunity to experience a spectrum of emotions and expert designers are able to respond positively and use their emotions to the benefit of their designing processes.

While the naming and framing activities of the creative event bring order and coherence to the design situation, the expert designers involved in this study describe chaos events that unsettle designers by disrupting the coherence that they have established. In data sections 1.9/10.1 and 1.9/10.4 McCullagh, K. describes the situation that places him in the greatest turmoil. According to McCullagh, K. 'the worst thing is client's changing, changing the rules, changing their minds completely, just being chaotic' (McCullagh, K., 1.9/10.4). It should not come as a surprise that designers can find their relationship with clients a frustrating aspect of their practice. Clients represent an intimate and influential factor in the design process, which is outside of designers' personal control. As the design process begins, new understanding is generated into the design situation and the client problem. The new understanding and insight allows the client to re-evaluate their position, which can result in changes to the design parameters or the statement of the design problem. As the activities of the designer or design team aims to resolve the uncertainty inherent in the design problem these changes generate frustration and further uncertainty by continually shifting that which they are trying to unite and resolve. Data sections 2.8.5 and 2.9/10.1 also describe clients as a source of chaos events.

Working with others is an essential element of being a designer. Working with others can be very rewarding and beneficial to the design project but can also generate turmoil and frustration and can be seen as a source of chaos events. In data section 1.9/10.2 McCullagh, K. highlighted internal miscommunication as a difficulty that he faces and a situation that causes turmoil.

Interestingly, Kyffin, S., in a section of the interview when he was describing situations that place him in turmoil, talked about instigating chaos events. The following is an edit of that passage of the interview:

I am personally more motivated by the idea becoming reality rather than people growing while making the idea become reality, so I am more of an issue person than a social cohesion person, although other people tell me that's not the case but that is how it feels to me (Kyffin, S., 5.10.1).

I noticed even with talking to the students just now, I just want them, I am torn between them getting on with it and them making sense and me just listening to them in order to make them feel better about themselves and feel more confident and therefore grow a bit more, because I am trying to get out of them

what their ideas are so that I can speak into them with them to help them go forwards, whereas they probably don't need that they just need to be encouraged as human beings but that doesn't help their work today, it helps them today but not their work (Kyffin, S., 5.10.2).

I know that they are screaming at me just saying just make me feel good and I am pushing the, because you only get 20 minutes or half an hour with someone and I could just listen, that would be really helpful, but I feel that for me it's not helpful enough because I haven't had a direct influence on the [project] but it probably has, but that's my own personal added value (Kyffin, S., 5.10.3).

It is clear that Kyffin, S. recognises the important balance between challenging solution concepts and the naming and framing that underpin them and encouraging the designer in their confidence to further develop the design situation and challenge it themselves.

5.3.4 – Conjecture One analysis summary

Conjecture One proposed a series of emotional phases that are intimate aspects of designers' experience. The data analysis did not refute the basic premises of this conjecture, although data was identified that suggested important features of the experience of designing not described by Conjecture One.

An analysis of this study's data did not refute the following statement: *professional designers are optimistic about their ability to resolve design problems, see problems as opportunities and begin their task with positive excitement.* However, the data suggests that designers require a degree of peace, contentedness, stability and security in order to positively engage with the emotional phases that accompany and are part of explorative design.

An analysis of this study's data did not refute the following statement: *as designers engage with a professional context that is uncertain, ill structured and ambiguous they personally experience uncertainty and its discomfort. As the uncertainty of the challenge is grasped, fear develops about their ability to resolve the design problem's issues and exploit its opportunities.* In addition to these statements the data also suggests that the activities of ordering the design situation and committing to particular viewpoints also trigger the experience of uncertainty and fear about the appropriateness of that judgement.

An analysis of this study's data did not refute the following statement: *iterative attempts to develop solutions can lead to frustration as the designer assesses his/her propositions as inadequate at resolving the design challenge.*

An analysis of this study's data did not refute the following statement: *over time, if solution propositions continue to be assessed as inadequate, dread is experienced as the designer questions his/her ability to resolve the design challenge. Mental paralysis can occur after this stage where the designer is unable to further explore the design situation.* The data indicates that mental paralysis can occur due to high levels of uncertainty and anxiety. However, the data also suggests that mental paralysis may be the result of fatigue or tiredness and not be due to the levels of fear and uncertainty that dread implies. Also, it is easy to conceive the situation whereby inertia and paralysis result from extreme excitement. The data indicates that expert designers manage the intensity of their experience and their efforts in order to be effective and avoid mental paralysis. If paralysis does occur expert designers have a range of strategies that they employ to resolve the mental blocks and inertia.

An analysis of this study's data did not refute the following statement: *a creative event, which can occur at any point in time and at any reflective practice stage, transforms the tone of an expert designer's experience. Creative events differ in their significance and effect and are the moments of realisation when an expert designer reframes his/her situation of practice. The experience of certainty and joy accompanies creative events, which are seen as uncertainty resolving, and returns the practitioner to a state of optimism and excitement.* The data analysis further suggests that: contextualised by the challenge of the design situation the creative element of the design experience is stimulated by: iterative attempts to escape the discomfort of uncertainty and manifest clarity through the creative moment; attempts to protect the conceptual certainty and joy of a design proposition; and the need to do better and have their propositions accepted and considered valuable by other people.

Data has been identified that refutes Conjecture One in its current form. These data segments suggest: a) that chaos events are significant in influencing the emotional tone of a designer's experience; b) that designers require a degree of peace to effectively engage with their design challenges; and c) that the conjecture should be

formatted in a manner that avoids describing the emotional phases as rigidly consecutive. Chapter 6 presents a discussion about the study's findings and their significance.

5.4 – Conjecture Two testing through data analysis

5.4.1 – Conjecture Two data matrix

This section presents the data relevant to Conjecture Two. Table 5.2 presents and categorises the data as either conjecture confirming or conjecture refuting.

Table 5.2: Conjecture Two data matrix

Data codes refer to interview transcript excerpts coded and presented in Chapter 4

Conjecture Confirming Data	1.4.1, 1.4.2, 1.4.5, 1.7.6, 1.8.1, 1.9/10.3, 1.11.1, 1.11.2, 1.11.3, 1.11.4, 1.12.5, 1.13.1, 1.13.2, 1.13.9, 1.13.10 2.3.5, 2.4.1, 2.4.2, 2.4.3, 2.4.5, 2.5.3, 2.7.1, 2.7.2, 2.7.3, 2.7.4, 2.7.5, 2.7.6, 2.8.1, 2.8.2, 2.8.3, 2.8.4, 2.8.6, 2.14.1 3.3.1, 3.3.4, 3.3.5, 3.3.7, 3.3.8, 3.3.9, 3.7.2, 3.7.6, 3.7.7, 3.8.2, 3.8.4 4.7.1, 4.7.2, 4.7.3, 4.7.4, 4.13.5, 4.13.6, 4.13.7 5.2.3, 5.2.4, 5.2.6, 5.3.1, 5.10.1, 5.12.2, 5.12.3 6.2.1, 6.7.1, 6.7.2 7.2.4, 7.2.5 8.4.2
Conjecture Refuting Data	7.2.4, 7.2.5, 7.9.1

5.4.2 – Data Supporting Conjecture Two

Conjecture Two
The design process involves uncertainty resolution and generates emotional fluctuation and disquiet. Expert designers recognise the necessity, and are willing to continually face their feelings of dissatisfaction and psychological discomfort.

Through an analysis of Conjecture One it has been established that the experience of designing unfolds through an emotional complex. The experience of designing can be difficult, frustrating and uncomfortable. Conjecture Two states that expert designers recognise the necessity, and are willing to continually face their feelings of dissatisfaction and psychological discomfort. The following is a critical consideration of the study's Conjecture Two confirming data.

McCullagh, K., while discussing the role that emotions play in his design practise, does not talk about denying their existence or repressing them, nor does he talk about ignoring them or turning away from them. McCullagh, K. talks about the importance of 'gut reaction' (1.11.1) a tacit knowledge and sub-conscious wisdom (1.11.1 and 1.11.2), the expert instinct that clients pay for (1.11.3). In data section 1.11.4 McCullagh, K. talks about feeling an emotion and digging around to understand it more fully. Data Sections 1.13.9 and 1.13.10 illustrate that McCullagh, K. does not shy away from uncomfortable periods but is fully involved.

Delaney, M. describes design activity as a process of elegant compromise, resolving conflicting demands through a solution definition (2.3.5, 2.7.1, 2.7.2, 2.7.3, and 2.7.4). By this definition, design is a difficult struggle and you need to engage with that struggle to be designing.

Design doesn't allow you to get too self-indulgent because you always have clients, you always have the struggle of trying to please the client, your own creative impulse, the struggle of trying to deal with manufacturing constraints and I like wrestling with all those things and trying to mould something that has worth (Delaney, M., 2.3.5).

A tactic that Delaney, M. uses to keep returning to design development is a constant questioning process:

[During] the physical act of getting down to the sketch-pad and doing something; I'm trying to go through the mental process of questioning: I think a constant questioning is always needed, *'Is this appropriate, is it right?'* (Delaney, M., 2.4.1)

An idea, a solution proposition can alleviate the uncertainty of the design situation. The sketch, model or prototype can represent the conceptual certainty the designer experiences; however, the process of asking 'hard questions' and 'searching for better ideas' (2.4.3, 2.4.5 and 2.5.3) means that Delaney, M. returns to the experience of psychological discomfort of uncertainty providing the opportunity to create and identify solution propositions that are more appropriate, demonstrate a better appreciation of the design context and resolve the conflicting conditions of the design situation with greater satisfaction.

The data analysis suggests that designing can be viewed as a process of asking questions, creating test propositions that respond to those questions and listening to and for feedback in constant iterative cycles of different time spans. As the process unfolds the questions should become more astute, articulate and probing in their understanding of the design context. The tests should be more refined, explicit, complex, and tangible in their representation of the design proposition, and feedback should become more specific, constantly feeding into the product development and question posing process. A designer needs to be aware of the questions they are asking and which questions the design context and the stage of the project demands: this requires a high level of awareness applied and engaged with their intimate experience as the questions will not always be explicit and obvious.

Inquisitiveness appears to be an essential quality for designers. When other designers do not and are not prepared to expend the effort required to maintain this level of engagement and curiosity, expert designers often feel frustration and disappointment. Data sections 1.9/10.3, 2.4.2, 4.7.2, 4.13.5, 4.13.6, 4.13.7, 7.2.4 and 7.2.5 capture these views.

This is a bit of a personal bug bear; when people just want to slip into a pattern that they're familiar with, '*So we did this with the last project let's do that*', rather than go, '*Well what's actually the right thing to do on this project*' (McCullagh, K., 1.9/10.3).

I see a lot of young, and old designers, who are very wary of pushing themselves too far out of their comfort zone. Trying to challenge yourself is kind of important (Delaney, M., 2.4.2).

I think that there are some designers, quite a lot of designers that are insufficiently curious or critical about what they are doing on the other hand they have job and a mortgage and have to pay off their credit card bills, like along with many other people they don't make life complicated they just do their job [...] (Thackara, J., 7.2.5).

Stokes, A. claims that despite employing talented young designers there are few who have developed to be truly inspiring designers. Stokes, A., with astonishment, suggests that the majority do not develop because they are too easily pleased with themselves and too smug (4.7.2), he states: 'they became complacent, lazy designers and lazy people who took things for granted and were more interested in going out to

the pub at 5.30 than they were about their work and the world around them' (Stokes, A., 4.13.6).

The descriptions of other designers can be compared to the descriptions that the participants provide of themselves. McCullagh, K. when asked how he develops his practise replied, 'I am very self-critical. I am always looking for ways to do things better' (McCullagh, K., 1.8.1). Delaney, M., in data section 2.8.1, said: 'I think it's important as a product designer to constantly question what you're doing and why you are doing it, *'Is this the best way?'*' Data sections 2.8.2, 2.8.3, 2.8.4 and 2.8.6 all support the value and importance that Delaney, M. places upon striving for constant improvement. Stokes, A. when asked to define or describe a good designer made the following comments:

A good designer isn't a specialist, but is somebody who is just interested, intuitive, never satisfied, innately curious, and always striving trying to find a better way (Stokes, A., 4.7.1)

I'm not saying it's a good quality to have, but my observation is that good designers are never happy they're never satisfied, never content (Stokes, A., 4.7.3)

The data suggests that expert designers are engaged and inquisitive, they are critical of themselves and of their professional activities and outputs. This appears to manifest in their practise as a constant question posing process and a willingness to listen. It is suggested that this mental state has a fundamental importance for: stimulating process development; exploring the design situation; preventing stagnation and inappropriate approaches to projects being followed; and questioning how propositions appropriately respond to the situation. Expert designers suggest that each project demands its own approach and therefore being a designer should never be viewed as something one achieves, it is something one continually becomes through questioning and searching for the most appropriate approach and response to the current design situation. Designing is challenging and emotionally and intellectually demanding and a designer needs to be able to remain engaged with their activities. Stokes, L. when talking about the internal drives that draw people to and keep them being a designer said: 'where some people would only go so far and go away crying with their tail between their legs I mean most good designers just, just carry on' (Stokes, L., 3.7.2).

Stokes, L. highlights the mental agility that designers require when working at London Associates:

We don't have one person here who has only got one project in their head, they've all got different projects and they're all at different stages and they've got to be able to immediately access that project in their mind and run with it that's part of our criteria for the people who are actually going to enjoy working here and it's quite tough I think (Stokes, L., 3.8.2).

Stokes, L., in data section 3.7.6, 3.7.7 and 3.8.1 marked out mental agility, or the ability to swap between vastly different ways of looking at a project as 'the biggest differentia between an ok designer and a really good designer'. The following is an edit of those data sections:

There is a quality that good designers have [...] that you do see missing in other careers [...]. It's probably best described as being able to think very, very broadly almost globally and then suddenly being able to snap out of that and think on a very, very detailed level and then being able to snap again to think broadly (Stokes, L., 3.7.6).

I once heard it described [...] [as] looking down one end of a telescope and then you reverse it and reverse it back and then reverse it [...]. It is mental gymnastics it's that ability and that is the biggest differentia on a practical level [...] between an ok designer and a really good designer, that ability, because some people still, even designers tend to go down the detail route and find it difficult to see their way out of it, whereas you've got to be able to keep changing that view point (Stokes, L., 3.7.7).

If you did nothing else but think of the future I mean I think that would be easier, or if you did nothing else but worry about tolerances on mouldings but when you're trying to do both that is an example of design thinking really or the innate ability of good designers [is that they] can actually do that without you know, without getting to much of a headache (Stokes, L., 3.8.1).

Being able to change ones viewpoint or reframe a situation, context or specific design problem is absolutely central to the activities of a designer and provides new ways of engaging with the design situation. Empathy can be considered a type of this activity. Empathy, engaging with multiple viewpoints, plays an important role in the professional life of a designer. Delaney, M. made this point: 'I think when you're undertaking design processes you need to have a good degree of empathy for other people and other points of view' (Delaney, M., 2.7.5), 'you need to have an empathy not just with the design premise but outside your realm of experience' (Delaney, M.,

2.7.6). Designers seem to place importance upon personal empathy, commercial empathy and discipline empathy. Personal empathy and understanding of other people (users or product recipients) helps designers to create 'things' that speak directly to particular people and offer clear benefit. Commercial empathy allows the designer to engage with their clients' short and long-term business strategy, brand values and product/service problems (1.4.1, 1.4.2, 1.13.1 and 1.13.2). Discipline empathy allows the designer to engage positively with the other disciplines that feed into complex design projects. In addition to a person's ability to carry out particular specialist activities, Brown, T. marks out empathy as the quality that allows people to work successfully within a design environment.

I talk about this notion of people being 'T' shaped and what I mean by that is that they have two qualities to them, one is that they have a quality of depth an ability to do something and that might classically have been the craft of a particular design discipline, graphic design, industrial design, architecture but in our organisation that might include, that might be the craft of linguistics or psychology or mechanical engineering or electrical engineering, we have many many different disciplines, so they have that depth but what allows them to work in a design environment, so that's the depth the vertical strut of the 'T', the breadth the horizontal stroke of the 'T' is really what we describe as empathy, so to be a great designer you have to be able to have empathy for others you have to be able to, you have to be able to get outside of your own view of the world, your own existence and have an enthusiasm and desire to understand the world from other peoples' perspective, so that applies in two different ways when you're being a designer: 1) is that's how you get to be empathic to the people that you're trying to solve problems for so that's tremendously important but just as important is 2) how you get to be empathic and interested in all those different disciplines that contribute to the process (Brown, T., 6.7.1).

Stokes, A. also made the point that design requires a combination of specialist skill and empathic understanding:

The art and craft of design is still dependent upon being able to draw, make, use computers, coupled to an extensive library of practical and cultural know how. Interaction with others can turn good into great; it helps if you're curious about other peoples' points of view and willing to listen. So the ability to work with others in an open handed and open minded way is another essential, as is trust in your own judgement (Stokes, A., 4.7.4).

Delaney, M. explained the need for accessing and understanding a range of viewpoints in data section 2.14.1:

I've learnt that there's this perception that designers are individuals, you're ego driven and your ideas are the best and you've got to force those through and I don't think that those are particularly appropriate in the modern world and the best designs are going to happen when the egos can be put aside for a while. You do need a certain amount of ego to be a product designer because your job is to get on and say '*Right. This is right because I say so*', but you need to be able to put that ego aside and so it's right for a whole different bunch of factors that aren't driven by my creative genius (Delaney, M., 2.14.1).

The process of unfolding into broader contexts and unfolding from one's own view on the world describes a gradual development that the interviewees continue to explore and traverse. These two components unfold together as a designer matures underpinned by the energy of the designer's inquisitive and critical curiosity. Kyffin, S. describes his progression from being object and discipline motivated to a recognition and respect that design is about everything and relates to everyone.

[My motivation has] changed from being discipline centred, which is: I want to design beautiful things for people to enjoy and therefore to help companies to make more money by improving them technologically, humanly, ergonomically, culturally and aesthetically because design says you should be able to do that, the motivation for that at the time was core modernism because it would make more money, because people would be seduced by those qualities and therefore buy more of the stuff because it was better than other versions but even all that being true... All that is still true and we do create wealth by it and we do create better quality of life because of it, but I did it because of the discipline and because that is what I was trained to do, that was my level of consciousness. Now I do it because I am 25 years older and I notice that it touches every part of my life and the world isn't just about the design discipline it's about everything simultaneously and I think it may be patronising to say it in anybody else's context but it's also, it's just about growing up, it's about maturation, of being a human being and realising that in our own time/space world very few people rely on certainty and everything is connected (Kyffin, S., 5.3.1).

Expert designers engage and work with their dissatisfactions and discomfort because they care about the quality of their work, they care about the project (1.12.5 and 3.8.4), they care about the product's recipient and their experience of using what they design and they care about the consequences that their work has on the world at large. Stokes, L. when talking about when he has felt dissatisfied described why he could not walk away from a project:

It's a problem isn't it; I mean you're a designer. I think the other thing about designers is that you actually have a loyalty to this product that you're designing, it is a thing, it is a person, it has a personality it, and I mean in some

situations you just say, *'Well if I walk away from this I am abandoning my baby'*, so you have to, in some situations, just bite your tongue and just get on with it for the sake of this, this, this, I mean the emotions bubble with products, I mean whether that's a good thing or a bad thing you know is probably a debateable point but I think it happens, well in fact I know it happens (Stokes, L., 3.8.4).

Kyffin, S. made the argument (5.2.3, 5.2.4 and 5.2.6) that design is for and does touch everyone even if people are not sensitive enough to appreciate the fact. Kyffin, S. posed the following rhetorical question through which he makes the statement - it is important to care about quality:

Is it our responsibility to give them the best quality because we know that it's culturally enriching and to give them slap dash stuff is an insult to their humanity, even though they're not sensitive [enough] to notice. That has been a designer's and architect's dilemma, or any creative persons dilemma forever (Kyffin, S., 5.5.2).

Kyffin, S. also made the point that although it is uncomfortable and frustrating to push people, to challenge their assumptions and see their discomfort he wants to contribute to peoples' design projects and this is one of his ways to adding value (5.12.2 and 5.12.3).

When asked what is important, Blair, S. answered: 'to feel really human and really alive'. Explaining what he meant he stated:

The way I am meaning it is to be as present to life with its ups and its downs, not necessarily to be ok with it. I suppose my experience over the last couple of days when I have been ok with it is to take time in the moment to enjoy it and know that you're enjoying it, I think that is part of living fully. So there's an awareness I think of, what's been happening, the ability to reflect and either enjoy or not enjoy, so reflection in the moment maybe (Blair, S., 8.4.2).

Perhaps designers remain engaged and present with the experience of designing, through its frustration, uncertainty, discomfort and its joy, excitement, and satisfactions because in doing so they feel fully alive and fully rewarded for their efforts.

If being a designer is about bringing new things to life (6.2.1), if designers have a desire to produce tangibility, to transform ideas into something real and manifest (5.10.1 and 6.7.2) and if the experience of designing involves discomfort as well as

pleasure, then it seems clear that it is necessary to continually engage with the processes of designing, experiencing and learning fully from the feelings and thoughts that arise. It is also clear, based upon this study's data and the participants' comments, that some designers lose interest in their projects and therefore never develop them as fully as they could and never maximise their opportunities to improve as a designer. The data suggests that expert designers develop strategies to encourage their engagement with the design situation and ensure that they continue to reflect-in-action and continue to learn how to design.

The data indicates that expert designers desire design problems of greater complexity and difficulty. It is suggested that engaging these problems has the effect of actively stimulating dissatisfaction and discomfort by enhancing the pressure and uncertainty of the creative challenge which the designer then actively pursues a resolution for through their professional practise. In data section 1.4.5, McCullagh, K. states the following:

I guess I am motivated by new and complex problems and interfacing across disciplines. I think that what's important to me is being involved in, not cranking the handle and solving similar problems that were done before, really engaging with new and complex ones and trying to solve it (McCullagh, K., 1.4.5).

McCullagh, K., in data section 1.7.6, suggests that a 'thirst for new experiences', 'for new types of problems' and 'working with new people' are some of the desires that help a designer develop their practice. Stokes, L. surmised the path of his practice's development as shaped by his 'constant searching for new problems' (3.3.4 and 3.3.5). Stokes, L. describes himself as easily bored and requiring new challenges (3.3.1). For Stokes, L. the most pleasurable projects are the most dangerous (3.3.8), they are ground breaking and revolutionary (3.3.7), they are the projects where you create something that is truly new (3.3.9). The data suggests that searching for and enjoying increasingly complex problems is based upon: the desire to maintain or experience greater levels of the fear and excitement associated with uncertainty resolution; the desire to feel more intense or more frequently the thrill of the resolving creative moment; and the achievement and recognition of the final result. The data suggests that engaging with problems of increasing complexity is both pleasurable and highly motivating. Perhaps expert designers search out and engage increasingly

complex and challenging problems because it allows them to maintain or heighten the mental and emotional experience of designing.

The data illustrates that in their desire to strive for better personal performance and professional outputs, expert designers, are willing to engage with their feelings of dissatisfaction and psychological discomfort and if necessary they will do this repeatedly. Conjecture Two is supported directly by data from three cases. Data from the interview with Delaney, M. illustrates an active process of questioning and search whereby Delaney, M. repeatedly returns to the ambiguity of the design challenge. Data from the interview with Stokes, L. highlights an opinion and observation that good designers are able to carry on and work through the difficulties of designing whereas others cannot or are not willing to. Data from the interview with Kyffin, S. illustrates the turmoil and Kyffin, S's. willingness to engage it in pushing designers and generating chaos events. Four of the cases support the conjecture indirectly by describing poor design practise observed in other designers. The qualities that lead to poor practise are described as: a lack of inquisitiveness and smug conceit, which highlights a lack of a critical attitude and drive. The data suggests that if a designer lacks dissatisfaction with their current design articulation and lacks the willingness to continuously strive for betterment that this may be an indicator of poor design practise. The data analysis suggests that an important aspect of engaging in design practise is developing ways of seeing that allow one to unfold from one's personal viewpoint and reinterpret the design situation and its related solution propositions in a manner that empathises with the project's stakeholders. Empathy, inquisitiveness and willingness support an attitude of care that expert designers display with their professional efforts. Conjecture Two is strongly supported by the study's data.

5.4.3 – Data Refuting Conjecture Two

This section considers data that refutes Conjecture Two. Data sections 7.2.4 and 7.2.5 were presented in Section 5.4.2 as supporting evidence for Conjecture Two; they were presented as observations about the lack of engagement and critical questioning that is a trait of poor design practice. However, they can also be used as data that refutes Conjecture Two. What follows is a consideration of data sections

7.2.4, 7.2.5 and 7.9.1 and the suggestion that designers are not truly inquisitive and critical of their practice and its consequences.

What I propose to designers of all kinds is that one does it much more critically and with much more hesitation and with much more questioning rather than making assumptions that things are bad now and could be better if only I designed them differently but this applies equally to most aspects of daily life that you know (Thackara, J., 7.2.4).

I think that there are some designers, quite a lot of designers that are insufficiently curious or critical about what they are doing, on the other hand, they have a job and a mortgage and have to pay off their credit card bills, like along with many other people they don't make life complicated they just do their job. There are other people who regard themselves as having the right to change the world without having to take account of what other people might want and then there is a third group that is critical about the way that things are going and wishes to be part of a debate about alternatives and that's the group that I am in (Thackara, J., 7.2.5).

Maybe if one had a bit more self-critical reflection one would say, '*Well does the world need this thing*', which frankly if you asked that of any design project the pragmatic answer would be '*No the world doesn't need it particularly*'. But then it is indeed true that designers become designers because they want to make and do things, it's a bit hard to tell them not to do it (Thackara, J., 7.9.1).

As has been illustrated in this chapter, expert designers tend to hold the view that design contributes to progress; improves peoples' lives; and helps make the world a better place. While there are undoubtedly instances of these views being agreed upon, Thackara, J. suggested, in data section 7.9.1, that the majority of design projects produce outputs that the world does not need, and that designers must realise this or if they had more critical reflection they would. Thackara, J. is being provocative and suggesting that there are sets of assumptions that underpin design activities that are not questioned and that questioning them is an important step in reconsidering how we wish to live. Amongst these assumptions are the following ideas: designing means applying technology to everyday activities (7.2.2); in design practice humans should be removed from activities and replaced by machines (7.2.2); and that 'things' are bad now and could be better if they were redesigned (7.2.4). These data sections, from the Thackara, J. interview, refute Conjecture Two because they suggest that either designers lack critical reflection or that they do not face the difficulties that these observations suggest. When asked if anyone is ever disadvantaged by design Stokes, A. stated:

Phew. The world is disadvantaged because we design too much that is both unnecessary and poor quality. Replacing rather than repairing effectively dupes people into buying things they don't really need and is utterly unsustainable (Stokes, A., 4.2.2).

Perhaps data section 4.2.2 helps clarify Thackara, J.'s. meaning in data section 7.9.1. It does appear, however, that this realisation can motivate designers to produce quality, to strive for something that does live up to designers' ideals; Kyffin, S. made this suggestion in data section 5.5.2. It appears that the ideas that design 'contributes to progress', 'helps make the world a better place' and 'improves peoples' lives' are concepts accepted within the culture of design practitioners. The premise of product design is that through intentional consideration or re-consideration a particular product narrative can be improved. It could be claimed that the idea of improving our lives through design is so self evidently true that it is not really questioned. After questioning Stokes, L. about the purpose of design he made this point, 'these are very interesting questions I don't think I have actually been asked that before' (Stokes. L., 3.7.4). This debate can also be resolved with the obvious recognition that not all design outputs are created equal and certainly some offer more value than others; a design output may also be subordinate to the fact that not all design inputs are created equal either.

Thackara, J., in data sections 7.2.4, 7.2.5 and 7.9.1, makes a number of claims about designers. Data section 7.2.5 claims that designers are uncritical of the assumption 'that things are bad now and could be better if only I designed them differently'. In attempting to assess the value this data holds for refuting Conjecture Two it is worth considering who Thackara, J. is aiming his criticism at. Data section 7.1.4 is Thackara, J.'s response to being asked if everyone engages in the activity design, as he defines it, and what that implies for a profession of designers. Data section 7.1.4, presented below, reveals a perspective that is very inclusive:

My position is that a lot of things in this world are designed by people who either don't call themselves designers or don't know that they're designing but are doing it anyway and that ranges from people who, you know, create motorway systems to people who arrange flowers in a flower shop or who cut your body open with a scalpel there are all sorts of ways that people do things towards a desired end and plan it in advance and organise their actions in a methodical manner which is arguably a form of design (Thackara, J., 7.1.4).

When Thackara, J. describes, designers, as being uncritical of fundamental assumptions, is he referring to ‘designers’ in this very broad sense? If he is, then it may be that the criticism is not justified the case of expert professional designers. The weight of evidence that the other cases supply would suggest that this is true. Therefore, the data sections 7.2.4, 7.2.4, and 7.9.1 are seen not to refute Conjecture Two.

It is difficult to conclude, with the complexity of the world and the numerous positions available, the extent of the contribution that a designed output makes. The individual designer can only continue to care and constantly strive for the best they can do, aiming to offer genuine benefit and quality to the world, balanced in light of a realistic appraisal of: their position, sphere of influence and role; the conditions of commercial and economic compromise; and the destruction necessary to bring things to life. The result of not critically questioning the view that design positively contributes to progress through improving peoples’ lives and the world can lead the designer to apathy in the sense of lethargy and conceit. The expert designers interviewed seemed to make it their responsibility to manifest and justify these positive views through their continuous efforts and critical questioning, which allows them to build more sophisticated conceptual frameworks by which to judge their design ideas, outputs and contributions. Therefore, the conjecture that expert designers recognise the necessity, and are willing to continually face their feelings of dissatisfaction and psychological discomfort is not refuted.

5.4.4 – Conjecture Two analysis summary

An analysis of this study’s data did not refute the following statement: *expert designers recognise the necessity, and are willing to continually face their feelings of dissatisfaction and psychological discomfort.* The analysis suggests that expert designers behave this way to: iteratively generate more refined design proposals; manifest the ideal that they are positively contributing to progress; see the product or project through to a point of resolution; feel the thrill of the uncertainty resolving creative moment; and to enforce and build professional pride. The analysis suggested that: designing is an attentive conversation with the materials of the situation; designing is limited by designers’ ability to remain engaged with the design situation and their ability to develop the design situation; expert designers develop strategies to

encourage their engagement with the design situation and ensure that they continue to reflect-in-action and continue learning how to design.

5.5 – Analytical results

What follows are the results of the analytical process. Presented are statements about the phenomenon under study – expert designers’ experience of designing – that have stood up to genuine attempts at refutation. This section also presents statements about the experience of expert designers that are suggested by the data analysis.

Based upon the units of analysis the following are presented, with confidence, as descriptive of expert designers’ experience of designing:

1. Expert designers are optimistic about their ability to resolve design problems, see problems as opportunities and begin their task with positive excitement.
2. As expert designers engage with a professional context that is uncertain, ill structured and ambiguous they personally experience uncertainty. As the uncertainty of the challenge is grasped, fear develops about their ability to resolve the design problem’s issues and exploit its opportunities.
3. Iterative attempts to develop solutions can lead to frustration as the expert designer assesses his/her propositions as inadequate for resolving the design challenge. Over time, if solution propositions continue to be assessed as inadequate, dread is experienced as the expert designer questions his/her ability to resolve the design challenge. Mental paralysis can occur after this stage where the expert designer is unable to further explore the design situation.
4. A creative event, which can occur at any point in time and at any reflective practice stage, transforms the tone of an expert designer’s experience. Creative events differ in their significance and effect and are the moments of realisation when an expert designer reframes his/her situation of practice. The experience of certainty and joy accompanies creative events, which are seen as uncertainty resolving, and returns the practitioner to a state of optimism and excitement.
5. The design process involves uncertainty resolution and generates emotional fluctuation and disquiet. Expert designers recognise the necessity, and are

willing to continually face their feelings of dissatisfaction and psychological discomfort.

Through the data analysis the following statements have been suggested as descriptive of expert designers' experience of designing:

6. Expert designers require a balance between peace of mind and inquisitive discontent, continuing to strive and search for better personal performance and professional outputs while avoiding inertia due to fatigue, stress or conceit and avoiding awareness loss due to over excitement.
7. Expert designers desire and engage design problems of increasing complexity and challenge stimulating their experience of discontent and uncertainty, which they attempt to resolve through their professional activities.
8. The design process of uncertainty resolution generates emotional fluctuation and disquiet. When operating in situations of volatility and ambiguity, designers use creative thinking as a coping mechanism to escape their fear and uncertainty. Creativity thinking is used to frame and reframe the design situation in an attempt to create conceptual certainty and synthesis explored through propositional change experiments.
9. Contextualised by the challenge of the design situation the creative element of the design experience is stimulated by: iterative attempts to escape the discomfort of uncertainty and manifest clarity through the creative moment; attempts to protect the conceptual certainty and joy of a design proposition; and the need to do better and have their propositions accepted and considered valuable by other people.
10. The activities of ordering the design situation and committing to particular viewpoints trigger the experience of uncertainty and fear about the appropriateness of that judgement.
11. Chaos events are an aspect of designers' experience. Chaos events initiated by people other than the designer unsettle the designer generating uncertainty, anxiety and fear by disrupting the coherence that they established.
12. Expert designers are willing to and iteratively face their feelings of dissatisfaction and psychological discomfort in order to: iteratively generate more refined design proposals; manifest the ideal that they are positively contributing to progress; see the product or project through to a point of

resolution; feel the thrill of the uncertainty resolving creative moment; and to enforce and build professional pride.

13. Designing is an attentive conversation with the materials of the situation. Designing is limited by designers' ability to remain engaged with the design situation and their ability to develop the design situation. Expert designers develop strategies to encourage their engagement with the design situation and ensure that they continue to reflect-in-action and continue learning how to design.
14. Underpinned by inquisitive and critical curiosity, expert designers unfold into broader contexts and unfold from their own view on the world. Using creativity to reframe situations expert designers engage with multiple viewpoints. Personal empathy, commercial empathy and discipline empathy provide three channels through which expert designers undertake disciplined inquiries.

5.6 – Chapter summary

Chapter 5 has presented the study's data analysis and results. The two conjectures initially proposed in Chapter 3 were analysed by identifying and discussing the study's supporting and refuting data. The full interview transcripts (refer to Appendix A) have been data coded to reference specific excerpts, Chapter 4 presented the study's data and in this chapter data matrices were used to illustrate which transcript excerpts support or refute the study's conjectures.

The analysis did not refute either Conjecture One or Conjecture Two. However, the data did suggest amendments that would allow the theory to more accurately represent the experience of expert designers. Section 5.4 presents the analytical findings. The findings are statements about the experience of designing and are categorised as either tested by the analysis or suggested by the data analysis.

The purpose of this chapter was to move toward to study's aim and help increase our understanding of designing as it is experienced. In moving toward that aim the objective of this chapter was to present a data analysis of the study's conjectures. This chapter has illustrated which data sections are pertinent to the conjectures and categorised the data as either conjecture supporting or conjecture refuting. This

chapter has presented a discursive analysis of the conjectures and presented the analytical findings. The findings of the data analysis have been presented as statements about the experience of designing and are forwarded as either tested by the data or suggested by the data.

Chapter 6 discusses the study's finding. The study's findings are discussed in the context of design theory relating to the experience of designing. The discussion considers how the findings support, deny or extend these theories. Chapter 6 makes the study's contribution to new knowledge explicit.

CHAPTER SIX - Discussion

Relating the findings of the data analysis to design theory and stating the contribution this study makes to new knowledge

6.1 – Chapter purpose

The purpose of this chapter is to consider the findings of the study's data analysis, presented in Chapter 5, and explicitly state how this study contributes to new knowledge and its understanding. The study's broad aim is: to increase our understanding of designing as it is experienced, this chapter sets out how this study has achieved that aim.

The study's basic research question is: a) what is the current state of knowledge about the phenomenology of designing; and b) how could this understanding be improved? Chapter 2 reviewed literature to address the first part of the basic research question and posed focused research questions as a response. Chapter 3 described the study's research design outlining an empirical study, which addressed the second part of the basic research question. Chapter 3 forwarded two conjectures that the empirical study attempted to refute. Chapter 4 presented the data for this study's eight case studies and Chapter 5 contained the study's data analysis. Resulting from the data analysis were fourteen findings, five were presented as tested by the data analysis and are therefore considered more conceptually robust, and nine were presented as suggested by the data analysis and are considered valuable but conceptually weaker.

Chapter 6 has four objectives: 1) discuss and relate the findings of the study to relevant literature reviewed in Chapter 2, making clear how the findings validate or refute current design theory; 2) discuss the reliability of the findings and present the findings as either robust findings that the research was designed to test, conjectures that the data analysis suggested, or conclusions drawn from the robust findings; 3) make suggestions for further research by considering the implications of the findings and by considering the scope and limitations of the research design; and 4) present the study's contribution to new knowledge and its understanding.

6.1.2 – The discussion's theoretical background

In Chapter 2, Section 2.2.2, it was argued that under the paradigm of design as technical rationality, as supported by Simon (1969), the experience of the designer, their inner world, is unimportant and irrelevant; it does not affect the nature of the

design problem nor the approach to solution identification and optimisation. Section 2.3 presented the work of Dorst (1997), which established the paradigm of design as reflective practice (Schön, 1987) as a better description of design-as-it-is-experienced in practise in a study using industrial design engineers. This study's research design and sampling decisions looked to identify cases that are considered strong examples of expert industrial designers and/or design commentators (a-typical exceptions were discussed in Section 3.5.5). Therefore, the findings of this study are not, nor intended to be, methodologically compatible with theory from the paradigm of design as technical rationality. The findings will be discussed in the context of design as reflective practice.

6.2 – Discussing the study's findings

6.2.1 – The design experience

Section 6.2 aims to describe the design experience as portrayed by the findings of this study, positioning the findings in relation to current design theory. The study's findings are divided into two categories: findings tested by the data analysis (findings 1-5) and findings suggested by the data analysis (findings 5-14). The findings can be organised around four broad themes, which will be used to structure the following discussion.

1. Descriptions of the experience of design practise
2. Designers' mindset
3. Behaviours of good reflective practise
4. Conditions and use of creativity.

6.2.2 – Descriptions of the experience of design practise

Included under the discussion theme 'descriptions of the experience of design practise' are findings 2,3,4,10, 11, and 14. What follows is a discussion of these findings, which highlights how this study has contributed to new knowledge and its understanding.

In Chapter 2, Cross' (2006) descriptive design concepts (design is: rhetorical, explorative, emergent, opportunistic, abductive, reflective, ambiguous and risky) were

reviewed and the criticism was made that these concepts are presented as a static snapshot of design abstracted from context with no sense of change over time and little indication of place within designing processes. This study has focused upon developing a description of the experience of designing and has attempted to portray the dynamism of the experience of designing and the conditions that support those experiences. The findings of this study illustrate that the tone of a designer's experience unfolds through a spectrum of emotional phases over time with their designing activities. This conclusion, although seemingly obvious, particularly to anyone who has practiced design, is in contrast to much design theory. This is not because studies have been conducted that have found designers' practise to be experientially neutral; rather, it is because researchers have not focused upon the experience of designing and as such the knowledge about the experience of designing is often obtained as a consequence of their focal inquiry. The effect of this is that the literature about the experience of designing is not connected to other aspects of design theory, does not place descriptions of the experience of designing in context and often only pertains to the most dramatic experiences (Davies and Talbot, 1987; Lawson, 1994; Cross and Clayburn Cross, 1996; Cross, 2006). Schön (1983, 1987) focused upon the actions and not the experience of a reflective inquiry, although, he does use the practitioner's experience to help describe and punctuate his theory. The experience of surprise is used to denote the failure of knowing-in-action and the opportunity to apply reflection-in-action to the situation. Additionally, Schön (1983) states that one of the conditions of good reflective practice is that the practitioner is willing to enter into new confusions and uncertainties; that they must commit deeply to their constructed reality (naming and framing activities) and their exploration of it, while being open and willing to recognise that a frame or the potential solutions are not fitting the situation and re-enter the state of uncertainty. The findings of this study contribute to new knowledge by providing further descriptions of the experiential components of design activities within the paradigm of design as reflective practice.

The study's data supported Schön's description of the professional context of practice and it was claimed in Finding 2 that: *As expert designers engage with a professional context that is uncertain, ill structured and ambiguous they personally experience uncertainty and its discomfort. As the uncertainty of the challenge is*

grasped, fear develops about their ability to resolve the design problem's issues and exploit its opportunities. Cross (2006) stated that 'the uncertainty of design is both the frustration and the joy that designers get from their activity' (2006: 54). This study refutes that claim, highlighting that it is not the uncertainty of design that expert designers enjoy, rather it is the potential and pregnant opportunity that uncertainty represents, it is the fear that is generated as the designer experiences uncertainty that is enjoyed. Davies and Talbot (1987) stated that although ideas can occur at any time they seem 'most likely to occur when the person has to cope with significant life events, and/or a particularly knotty design problem' (1987: 23). The findings of this study appear to support this claim. Finding 2, describes a state of turmoil commonly experienced by expert designers as they frame, grasp and engage with their design challenge; generating solution propositions can be understood as a felt experience where the expert designer aims to resolve their experience of uncertainty, which is a physical response to their appreciation and understanding of their professional situation of practice and its consequences. Finding 2 highlights that expert designers, in addition to imposing order upon their situation of practice and developing solution propositions, must cope with their personal response to the experience of uncertainty and its discomfort and their personal doubts and insecurities that are given focus as they engage with challenging design problems.

Finding 2 resulted from Conjecture One Stage Two being tested by the data analysis. In Chapter 5, data from three cases were forwarded that supported and illustrated this conjecture stage. The only piece of data that refuted this conjecture described the experience of immediately recognising how to tackle a particular design brief upon contact with it. It would seem that in these situations designers do not experience uncertainty and its discomfort, as for them, in that moment, there is no uncertainty; they know what the answer is and how to pursue it. These situations appear not to be the norm and Finding 2 stands as a robust description of expert designers' experience of grasping and appreciating the uncertainty of their design challenge based upon the reflections of expert designers.

Cross (2006) proposed a general model of the creative strategies of expert designers (refer to Chapter 2, Section 2.5.3). The model described the relationships between problem goals, problem frames, relevant first principles, solution concepts,

and solution criteria. Finding 3 can be usefully considered in the context of Cross' model of creative strategies. Finding 3 refers to the experience resulting from reflective actions that evaluate solution concepts' inadequate satisfaction of solution and problem criteria, where the solution criteria, as suggested by English (2006) (refer to Section 2.2.3), are derived from a combination of tangible and non-tangible concepts, things that have to be (requirements) and things that the designer wants to be (values). Finding 3 provides a description of the design experience when the expert designer holds an evaluative stance that assesses his/her solution propositions as inadequate, claiming that: *Iterative attempts to develop solutions can lead to frustration if the expert designer assesses his/her propositions as inadequate at resolving the design challenge. Over time, if solution propositions continue to be assessed as inadequate, dread is experienced as the expert designer questions his/her ability to resolve the design challenge. Mental paralysis occurs if the expert designer is unable to further explore the design situation.* Finding 3 describes an experiential development, from frustration, to dread to paralysis, recognised by expert designers, when they continue to assess their solution propositions as inadequate. However, should the designer assess their solution propositions as successful they would not experience dread and are unlikely to experience anxiety-induced inertia. The designer may have produced a proposition that is genuinely successful in addressing the problem and solution criteria. However, it is also plausible that the designer has assessed a proposition as successful in order to escape their frustration, discomfort and fear; this may be due to a reduction in quality, avoiding being truly critical the designer may have convinced himself or herself that the proposition is successful. Finding 3 highlights the importance of receiving feedback and criticism ideally from those well placed in their understanding of the problem and solution criteria and the values expected of a professional designer or a specific design organisation. Finding 3 also highlights that it is important that designers are able to recognise their own self-deceit, be honest in their assessments and be courageous enough and prepared to experience the discomfort that striving for better personal performance and professional outputs necessitates.

Finding 3 is derived from the data analysis of Conjecture One Stage Three and Conjecture One Stage Four. Resulting from a conjecture that the empirical study was designed to test, Finding 3 stands as a robust description of expert designers'

experience, based upon the reflections of expert designers. Based upon Finding 3, there are a number of questions that could now be asked:

- For how long would a designer be frustrated, before beginning to experience dread and doubt?
- Are we able to measure the intensity of designers' frustration? Do designers need to cross a particular threshold before experiencing dread and doubt?
- How long does it take for mental paralysis to occur? Are these time periods completely idiosyncratic or can generalisations be made?
- Is there a correlation between design expertise and the amount of frustration an individual can experience while still iteratively investigating the design problem and proposing design solutions?
- Is there a relationship between design expertise and the speed with which an individual returns to their design inquiry after taking a frustration or anxiety-induced break?

Finding 4 describes the affect that creative events have upon a practitioner's experience, it states that: *A creative event, which can occur at any point in time and at any reflective practice stage, transforms the tone of an expert designer's experience. Creative events differ in their significance and effect and are the moments of realisation when an expert designer reframes his/her situation of practice. The experience of certainty and joy accompanies creative events, which are seen as uncertainty resolving, and returns the practitioner to a state of optimism and excitement.* Creative events can be identified at any of the reflective inquiry steps (naming, framing, moving through action, and evaluating through reflection). Finding 4 describes creative events as resetting the emotional tone of experience, with minor and major creative events differing in their intensity and motivational sustenance. Davies and Talbot (1987) described the experience of creative events as addictive and suggested that designers seek this eureka fix. Davies and Talbot's claim appears to be supported by this study. Creative events play a significant role in design practitioner's activities and experience. Imagination helps keep the design inquiry moving, illuminating new possibilities and avenues for the direction of the inquiry, providing new ways of exploring those avenues and identifying new ways of articulating their solution propositions. Finding 4 describes the role creative events

play in relieving the tension that builds over time as the expert designer engages with and experience the uncertainty and discomfort of the design situation. Expert designers appear to be effective in maintaining a level of experiential tension which helps them drive their design investigation while avoiding the extremes of anxiety-induced inertia and conceit-induced complacency; although, the data does illustrate that even expert designers do experience anxiety-induced inertia. There would appear to be a danger associated with the claim that design practitioners seek the experiential high, or fix, that creative events provide. It is possible that designers become driven by the desire to achieve a creative high, pulling their focus from the project's development; the designer becomes concerned with achieving their experiential satisfactions through engaging with design challenges as opposed to striving for the best possible design response, through which creative events may be experienced. The 'drug of design', the exhilaration felt when a design direction presents itself that appears to unify the uncertainty of the design context, is a powerful emotion recognised by the design practitioners interviewed in this study. It appears that the creative moment can become, for the designer, a thing that extends beyond the individual and becomes something to which they feel responsibility. In order not to taint their memory of that experience and the importance that it holds, the designer strives to find a commercial articulation that is a satisfactory reflection of the creative moment's insight.

Finding 4 resulted from Conjecture One Stage Five being tested by the data analysis. It is a finding that has resulted directly from a conjecture the research was designed to test. The data analysis did not identify any data that refuted Conjecture One Stage Five and therefore Finding 4 is presented as a robust description of the affect creative events have upon expert designers' experience, based upon the reflections of expert designers. Finding 4 contributes to new knowledge by describing the role creative events play in relieving the tension that builds over time as the expert designer engages with, and experience, the uncertainty and discomfort of the design situation.

Finding 10, which was suggested by the data analysis, identifies experiential commitment as a source of anxiety. It states that: *The activities of ordering the design situation and committing to particular viewpoints trigger the experience of*

uncertainty and fear about the appropriateness of that judgement. Schön highlighted, the progress from the tentative adoption of a move or frame to eventual commitment, as a condition of good reflective practice. This study identified that progress as necessary and stressful. Cross (2006) stated that ‘designers will generate early tentative solutions, but may also leave many options open for as long as possible; they are prepared to regard solution concepts as necessary, but imprecise and often inconclusive’ (2006: 54). It does appear to be a behaviour of expert designers that they will not commit to a solution proposition until it is completely necessary, thus leaving open the opportunity that a better solution can be articulated. However, the danger indicated by Finding 10 is that designers resist commitment in order to avoid the anxiety that it induces. Committing is important in order to move the investigation on into a new level of complexity and it does not preclude the possibility of revisiting the assumptions that the commitment was based upon. Cross also claimed that ‘design is risky – it is not comfortable and it is not easy’ (op. cit.). Cross’ assertion is made in reference to the time when a designer must make a personal commitment. Finding 10 agrees with Cross, designing does involve risk. Finding 10 also highlights that the risk involved in committing to a particular frame or solution articulation is that these are a clear statement of judgement and assessment of appropriateness, they are not deduced as fact or optimisation, and as such they are open to criticism and contradiction from other project stakeholders.

The research design was not set-up to test the theoretical proposition that Finding 10 refers to and data that supports this finding were only identified in one case study. Finding 10 represents a conjecture about the experience of designing, which has been indicated by the study’s data and is recognised as worthy of further examination.

Schön’s theory of reflective inquiry illustrated how professionals explore and establish coherence when faced with ambiguous situations of practice. In this study, Finding 11 states that: *Chaos events are an aspect of expert designers’ experience. Chaos events initiated by people other than the designer unsettle the designer generating uncertainty, anxiety and fear by disrupting the coherence that they established.* Chaos events appear to play an important role in reflective practice. Chaos events are strongly unsettling as they undermine the judgements and assumptions that the designer has committed to. However, these events provide (or

force) the opportunity for the designer to better understand the design situation and its context, to reflect, reframe and reconsider. The designers interviewed in this study described the importance of moving beyond their own viewpoint and engaging, understanding and empathising with the views of others. This activity, which has often been described as being open or open-minded, allows the designer to test and question their thinking; it affords the possibility of chaos events.

Finding 11 does not refer to a conjecture that the research was designed to test. The data that supports Finding 11 was presented as data refuting Conjecture One; it illustrated an important omission in describing the emotional tone of reflective practice and the situations that affect it. The data analysis identified the experience of chaos events in three of the cases studied; two of the cases described clients as the source of their chaos events and one case described instigating chaos events within the experience of other designers. To present this experience, and the data that supports it, as data that refuted Conjecture One, searches of all the cases were conducted to identify all instances pertaining to the experience of chaos events and any data that refuted its significance. No data was identified as refuting Finding 11. Based upon the reflections of expert designers, Finding 11 describes the disturbance that results from chaos events and is presented as a robust finding that has been subjected to an attempt at refutation.

The data analysis developed Finding 14, which states that: *Underpinned by inquisitive and critical curiosity, expert designers unfold into broader contexts and unfold from their own view on the world. Using creativity to reframe situations expert designers engage with multiple viewpoints. Personal empathy, commercial empathy and discipline empathy provide three channels through which expert designers undertake disciplined inquiries.* Finding 14 describes a method of investigation, used by designers, to more thoroughly appreciate the context of their design problem and the appropriateness of their design propositions. Empathising with the concerns or experiences of other people, organisations and disciplines helps to provide the designer with different ways of experiencing the situation of practice and the solutions being proposed. This study was not designed to investigate the experiences indicated by Finding 14 and a number of critical questions can be raised which this study is not in a position to answer. For example, how do designers

effectively empathise; how does the designer ensure the accuracy of their perspective and understanding; are there particular skills that are needed to go beyond an empathic understanding and integrate that understanding effectively into the design inquiry? Despite all that is unknown about the role of empathy in design activities, this study suggests it plays an important and valued role. The data analysis suggests that expert designers place large value on the process of empathic understanding within design practise and the expert designers of this study do suggest that personal empathy, commercial empathy and discipline empathy are crucial channels of understanding for design professionals.

Finding 14 does not relate to a conjecture that the research was designed to study and test; nevertheless, through this study's data analysis it was recognised that there is an additional conjecture worthy of further examination.

Findings 2, 3, 4, 10, 11, and 14 have helped describe the experience of designing as represented in the reflections of expert designers. Specifically, Finding 2 contributes to new knowledge and furthers our understanding of design activities by describing the experience of expert designers as they first engage with the uncertainty of their design challenge; Finding 3 contributes to new knowledge by describing the experience of expert designers who continue to hold the evaluative stance, over time, that their solution proposals inadequately satisfy the solution and problem criteria; Finding 4 contributes to new knowledge by describing the effect that creative events have upon experience and the role they play in relieving experiential tension built-up through design practise; Finding 10 contributes a new conjecture about the context of design commitment and its experiential consequence; Finding 11 contributes to new knowledge by highlighting the importance that chaos events play in design activities and their effect of disrupting and undermining the coherence that the designer had established; and Finding 14 contributes a new conjecture about the importance of personal empathy, commercial empathy and discipline empathy within the practise and processes of expert designers.

6.2.3 – Designers' mindset

Finding 1 and 6 are included under the discussion theme 'designers' mindset'. What follows is a discussion of these findings, which highlights how this study has contributed to new knowledge and its understanding.

This study found that at the outset of a design project, as stated by Finding 1: *Expert designers are optimistic about their ability to resolve design problems, see problems as opportunities and begin their task with positive excitement.* Expert designers' underlying optimism and confidence appears to play a vital role in supporting their professional activities and provides an initial positive momentum with which to meet their professional challenges. It appears that creative events enforce this optimism and return the designer to this state of optimism refreshed and reinvigorated ready to face further challenges thrown up through their investigation of the design challenge.

Finding 1 was derived from the data analysis of Conjecture One Stage One. Conjecture One Stage One was supported across multiple cases and a thorough search of the study's data could not identify data that refuted the statement. Based upon the reflections of expert designers, Finding 1 represents new knowledge that describes the frame of mind of expert designers at the outset of a design project.

The study's data analysis, and Finding 6, suggested that: *Expert designers require a balance between peace of mind and inquisitive discontent, continuing to strive and search for better personal performance and professional outputs while avoiding inertia due to fatigue, stress or conceit and avoiding awareness loss due to over excitement.* This finding is about emotional and experiential balance. Inquisitive discontent plays a vital role in the design activities of expert designers. As a mental attitude it maintains the drive to continuously strive for better personal and professional performance. Inquisitive discontent appears to be considered by expert designers as an essential attitude of good professional practise. Peace of mind appears to stabilise the individual. A designer's peace of mind seems to refer to: their assessment that their work satisfies the ideal that design contributes to progress, improves peoples' lives and helps make the world a better place; their positive perception of their value within their working organisation; and their ability to

produce quality within the constraints of commercial enterprise. In summary a designer's peace of mind refers to: their sense of personal professional worth, their sense that their work is worthwhile and the perception that their organisation's commercial model affords the opportunity to enforce their professional pride. Without their professional peace of mind, prolonged engagement with uncertainty and its discomfort is less likely, which is considered detrimental to their design inquiry. Issues from a person's personal life is a possible source of turbulence that may affect their peace of mind, in turn affecting their design inquiries; however, this was not a subject of this study, but could form further research.

Finding 6 does not refer to a conjecture that the research was designed to test. Finding 6 is a conceptual construction built from two ideas identified by the data analysis. In Section 5.4.3 the idea was forwarded that, to design well, designers require a degree of inner peace and contentedness. To substantiate this idea data was presented from four of the cases. In the data analysis of Conjecture Two it was illustrated that expert designers considered critical inquisitiveness and constantly striving for betterment as an essential quality for designers to have. Finding 6 captures the balance that some designers manage to strike between peace of mind and inquisitive discontent. Finding 6 is presented as a conjecture about the experience of designing, which has been indicated by the study's data and is recognised as worthy of further examination.

6.2.4 – Behaviours of good reflective practise

Included in the discussion theme 'behaviours of good reflective practise' are findings 5, 6, 7, 12 and 13. What follows is a discussion about these findings, which highlights how this study has contributed to new knowledge and its understanding.

In Section 2.4.5 conditions of good reflective practice, as highlighted by Schön, are forwarded. The findings of this study extend our knowledge by describing behaviours of good reflective practise.

The data analysis strongly illustrated the value that expert designers place upon constant striving. One behaviour of expert designers, captured in Finding 5, which manifests that value was their willingness to repeatedly engage with their uncertainty,

dissatisfaction and psychological discomfort. Finding 5 stated: *Expert designers recognise the necessity and are willing to continually face their feelings of dissatisfaction and psychological discomfort.* The designers interviewed demonstrated their frustration with other designers when they perceived them as turning away from the feelings of uncertainty and from constantly striving to be better designers and create better design outputs. One of the hallmarks of expert designers appears to be their remarkable ability to continually face their feelings of dissatisfaction and uncertainty, to continually use their efforts and energy to improve and care about the quality of their design outputs despite the difficulties and an ability to use uncomfortable emotions in a positive manner. At their best, designers face the discomfort of a situation and continue generating and judging design propositions, motivated by the desire to achieve the best, most appropriate design response for their current clients.

A question, not addressed within the scope of this study, raised by Finding 5, is: if a behaviour of expert designers is their willingness to re-engage with dissatisfaction and psychological discomfort, how and at what point do they recognise that enough is enough, and when is it appropriate to move on? Perhaps there is a point within design practise where continuing the same type of design activity no longer feels like an engagement with uncertainty. Finding 5 may suggest that, expert designers recognise this experiential shift and use it as a prompt to commit to a particular direction and move the inquiry on into a more complex level or change the methods they are using to investigate and develop the project.

Finding 5 is developed from the data analysis of Conjecture Two. Based upon the reflections of expert designers, Finding 5 contributes to new knowledge by describing a behaviour of good reflective practise. This study has illustrated that the experience of designing can be uncomfortable, Finding 5 states that expert designers recognise the purpose and value of, and are willing to, engage and re-engage those feelings in order to continue a design project's development. Based upon the reflections of expert designers, Finding 5 is presented as a robust finding that contributes to new knowledge by describing a behaviour of good reflective practise.

The motivations supporting the behaviour represented in Finding 5, are captured by Finding 12, which was suggested by the data: *Expert designers are willing to and iteratively face their feelings of dissatisfaction and psychological discomfort in order to: iteratively generate more refined design proposals; manifest the ideal that they are positively contributing to progress; see the product or project through to a point of resolution; feel the thrill of the uncertainty resolving creative moment; and to enforce and build professional pride.*

Finding 12 does not refer to a conjecture that the research was designed to test but builds upon Finding 5 based upon the data analysis. Finding 12 is a conceptual construction presented as a conjecture about the experience of designing, which has been indicated by the study's data and is recognised as worthy of further examination.

Finding 2 stated that as designers engage with their professional situation of practice they experience uncertainty and its discomfort; Finding 7 indicates that expert designers appear to thrive upon and seek this experience: *Expert designers desire and engage design problems of increasing complexity and challenge stimulating their experience of discontent and uncertainty, which they attempt to resolve through their professional activities.* The generation of the experience of uncertainty and its discomfort is evident in Cross and Clayburn Cross's (1996) study of Gordon Murray. In a description of his situation of practice Murray is quoted as saying, 'the pressure then to come up with something new becomes intense, and the responsibility is all yours, and you get sort of panicky'. It is suggested that this experience is an integral aspect of explorative and creative design practice. Cross and Clayburn Cross suggest that innovative designers frame or reframe the design situation in a way that creates significant challenge; this appears to be a tactic imposed by the designer to enhance the pressure and stress of the design situation, creating the experience of uncertainty and turmoil from which they attempt to escape through their professional activities; the result of escaping this experience is the generation of solution propositions. Finding 7 details a tactic used by expert designers to stimulate their experience of uncertainty and inquisitive discontent; engaging with design problems of increasing complexity appears to ensure that expert designers' experience of their design challenge is at the edge of what they are able to cope with.

Finding 7 does not refer to a conjecture that the research was designed to test. In Section 5.4.2 data from two cases illustrated expert designers' desire for design problems of greater complexity and challenge. The data analysis suggests that designers actively stimulate the uncertainty they experience, either through the design challenges they pursue and accept or the way that they frame their design challenge, and then try to resolve and escape that uncertainty through their solution proposition activities. Finding 7 is a conceptual construction presented as a conjecture about the experience of designing, which has been indicated by the study's data and is recognised as worthy of further examination.

In Section 2.5.2 Dreyfus and Dreyfus' theory of skill acquisition was reviewed. The relationship between the skill level 'expert' and reflective practice inquiry was questioned and it was argued that they are in theoretical conflict. The theory of skill acquisition explains that as the skill level increases the performer's realisation of their involvement and influence with the activity increases, it also suggests that as the skill level increases, the performer's response to the situation of skill becomes more instinctive and intuitive. It was argued, in Section 2.5.2, that the performance of skill level expert is synonymous with knowing-in-action. If as a designer's experience increases they build a repertoire of frames and moves, if through their reflection-in-action the designer learns and expands their repertoire of knowing-in-action, it is conceivable that a practitioner is able to bring more automatic responses to their professional situation of practice. In the data analysis it was shown that expert designers voice a professional dislike for other designers that are unprepared to push themselves and follow their established professional responses uncritically. One behaviour of expert designers, as suggested by the data analysis, is they aim to, and consider it important to, continue to learn how to design and actively avoid habituation within their design inquiries. Finding 13 describes two sets of skills involved in reflective inquiry: 1) the skills and abilities used to develop and forward the reflective inquiry and 2) the ability to remain engaged with their design inquiry: *Designing is an attentive conversation with the materials of the situation. Designing is limited by designers' ability to remain engaged with the design situation and their ability to develop the design situation. Expert designers develop strategies to encourage their engagement with the design situation and ensure that they continue*

to reflect-in-action and continue learning how to design. Potentially, there are a number of explanations why a designer may choose not to, or find it difficult to, remain engaged with their design inquiry. A designer, in an attempt to be efficient within a commercial situation, may not strive for the best response possible, but may cut short a design inquiry because they feel they have a solution that is satisfactory. A designer may distract himself or herself in order not to experience the discomfort of uncertainty and the frustrations that are a part of professional practice. A designer may find it difficult to remain engaged with a focused task. However, for the reflective inquiry to move forward the design practitioner needs to be connected with it and engaged in its development; if the practitioner's attention breaks from the materials of the situation then there is no conversation taking place and therefore no designing.

Finding 13 does not refer to a conjecture that the research was designed to test; it is presented as a conjecture about the experience of designing, which has been indicated by the study's data and is recognised as worthy of further examination.

6.2.5 – Conditions and use of creativity

What follows is a discussion of Findings 8 and 9, which highlights how this study has contributed to new knowledge and its understanding.

Finding 8 and 9 are conceptual constructions that summarise and contextualise other findings from this study with broader design theory. Finding 8 states that: *The design process of uncertainty resolution generates emotional fluctuation and disquiet. When operating in situations of volatility and ambiguity, designers use creative thinking as a coping mechanism to escape their fear and uncertainty. Creative thinking is used to frame and reframe the design situation in an attempt to create conceptual certainty and synthesis explored through propositional change experiments.* Finding 8 describes design as a process of uncertainty resolution, this statement reflects Schön's theory of reflective practice where the professional practitioner generates and establishes coherence within a situation of practice that was originally perceived as ill defined, ambiguous and uncertain. This study has highlighted that the uncertainty of the design challenge is engaged with, by expert design practitioners, as a felt experience; uncertainty resolution, can therefore be

viewed as a phenomenological practice where the designer aims to resolve the uncertainty they experience through their reflective practice inquiry. Beyond their experience, the designer's output should also affect the way other people experience a particular situation. The first sentence of Finding 8 also reinforces the findings of this study stating that the process of designing generates emotional fluctuation and disturbance. The second sentence of Finding 8 describes the situation of practice as outlined by Schön. The second sentence then positions the role of creative thinking. It states that designers use creative thinking, in the process of uncertainty resolution, as a coping mechanism. It has been discussed earlier in this chapter that designers experience uncertainty and fear, it has been highlighted that expert designers are willing to continually face and engage with these uncomfortable experiences and not turn away from them. It is suggested that creative thinking allows the designer to reconfigure the way they see his or her situation of practice transforming cognitive and experiential uncertainty into conceptual certainty and effectively allowing them to escape their uncertainty and fear. The process designers use to explore their conceptual certainty and synthesis is described as propositional change experiments.

Finding 9 is a conceptual construction that integrates some of this study's other findings to describe the conditions of the creative element within the practise of design: *Contextualised by the challenge of the design situation the creative element of the design experience is stimulated by: iterative attempts to escape the discomfort of uncertainty and manifest clarity through the creative moment; attempts to protect the conceptual certainty and joy of a design proposition and the need to do better and have their propositions accepted and considered valuable by other people.* This finding aims to describe three elements of the designer's experience and the conditions for the creative element in design practise, it describes: 1) the push of attempting to resolve and escape the discomfort of uncertainty and the lure and pull of the creative moment; 2) the attachment to the creative event and the insight revealed through it that designers experience and the effort designers must make to convince themselves and others of the value that their propositions hold; and 3) the push to return to the situation of practice and the experience of uncertainty in their attempts to strive for better personal performance and professional outputs.

Findings 8 and 9 are not derived directly from conjectures that the research was designed to test, they are presented as findings, based upon the reflections of expert designers, that draw from the data analysis and summarise some of the most valuable contributions of this study to our understanding of design activities from the perspective of the design as it is experienced. Findings 8 and 9 are presented as conclusions based upon the findings of this study.

6.3 – Speculative implications and further research

6.3.1 – Section purpose

The purpose of Section 6.3 is twofold: 1) to make suggestions based on the implications of this study's findings to three audiences: design researchers, design educators and design practitioners; 2) to consider the methodological limitations of this study and propose further research, which could usefully subject the findings of this study to further scrutiny.

6.3.2 – Speculative implications of the study's findings

Implied by this study's findings are the sets of suggestions, which this section presents, to the likely audiences of this work. The groups addressed are: design researchers, design educators, and design professionals. The suggestions are based directly upon the findings of this study.

The speculative implications of this study suggest that design researchers could investigate:

- The conjecture that the activities of ordering the design situation and committing to particular viewpoints trigger the experience of uncertainty and fear about the appropriateness of that judgement;
- The conjecture that expert designers require a balance between peace of mind and inquisitive discontent, continuing to strive and search for better personal performance and professional outputs while avoiding inertia due to fatigue, stress or conceit and avoiding awareness loss due to over excitement;
- The conjecture that expert designers actively stimulate their experience of discontent and uncertainty, which they attempt to resolve through their professional activities;

- The conjecture that expert designers use personal empathy, commercial empathy and discipline empathy as ways of reframing their situation of practice to unfold from their own personal point of view, better understand the situation of practice and its context and respond to those project frames with their solution proposition activities;
- The processes and experiences designers employ to empathise and how they ensure and check the accuracy of their empathy;
- How designers recognise when it is time to move a project on into the next stage of complexity and how this relates to their desire to keep striving for betterment;
- Designers' effectiveness at maximising the benefit of chaos events;
- The design process from the perspective of attachments and aversions;
- Designers' ability to tolerate frustration;
- The breaks of attentive engagement with a design enquiry and the effect this has upon a designer's efficiency and the quality of their final outputs;
- In greater detail the meaning of contentment and agitation to design professionals;
- The different ways that designers cope with their personal response to the experience of uncertainty and its discomfort and their personal doubts and insecurities that are given focus as they engage with challenging design problems;
- The role of cynicism and optimism in the design process.

The speculative implications of this study suggest that design educators may benefit from considering:

- How the qualities of inquisitiveness and professional care are nurtured and fostered in design students;
- How students are supported through the experiential turbulence of design inquiries;
- How students are supported through the process of having to cope with uncertainty and personal insecurity;
- How students are supported in developing a critical awareness of their personal designing processes, design guiding principles and investigative question formations;

- The techniques students are explicitly taught to allow them to create accurate and robust project frames which support personal, professional and discipline empathy;
- How current curricular and teaching practices stimulate the student to continually face and cope with the uncertainty of the design situation;
- How students are taught to, and mentored through, navigating and structuring ill-structured design situations.

The speculative implications of this study suggest that design practitioners may benefit from reflecting upon:

- The descriptions of the experience of design practise provided in this thesis – this may lead to: a) re-appraising the relationship they have with their own mental and emotional content and b) a better appreciation and understanding of their tacit knowledge and intuitive processes;
- How aware they believe they are of their own design processes, intentions and motivations;
- The mental and emotional states that they consider successful for developing design situations;
- Their own dissatisfaction and their ability to understand, engage with, and use uncomfortable emotions to the benefit of a design project.

6.3.3 – Research Limitations and recommendations for further research

The purpose of this section is to consider the methodological constraints and limitations that the study's research design imposed, and to consider further research that could be conducted to further test the findings of this study.

The phenomena under study in this research project is expert designers' experience of designing, this defined the context of the cases under study. This study used critical rationalism and the process of conjecture and refutation (Popper, 2002) as the epistemology to structure the process of knowledge generation. Descriptive multiple-case studies following replication logic (Yin, 1993; 2003) provided the methodological principles to guide and ensure consistency between the study's: conjectures, methods of sampling, data generation, data analysis and conclusion drawing. This research project was designed to be an embedded multiple-case study

with multiple units of analysis. The units of analysis are defined by the conjectures stated in Section 3.6.2. Semi-structured interviews using open-ended questions, with eight expert designers, were utilised as the method of obtaining qualitative data and a discourse data analysis was conducted to test the study's conjectures and draw conclusions. These choices create methodological and self-imposed limitations on the research. The following are recommendations for further research that would expose the findings of this study to further scrutiny and provide the opportunity to increase the strength of our knowledge about the experience of designing.

This study drew from the reflections of expert designers, obtained using semi-structured interviews and open-ended questions. This method of data gathering raises questions about the accuracy of the data in representing the experiences of designers. This is an inescapable limitation of the research design. Therefore, in articulating the claims of this study the researcher has made every effort to be clear that the findings, conclusions and conjectures resulting from the study's data analysis are based upon the reflections of expert designers. It is not claimed, by this study, that the research captured the experiences of expert designers and studied them. Experience is a first-person phenomena and it is not possible to study experience with third-person research methods. The use of interviews is an accepted and appropriate method for studying peoples' recollections and reflections on their past experiences. However, the findings of this study could be subjected to further research, which gather pertinent data using different methods. For example:

1. If the difference between, a pause in sketch activity when the designer is thinking about their design investigation and a pause in sketch activity when their concentration lapses, could be discerned, then a research project may be conducted that tested the relationship between a designer's lapses in concentration, their disengagement with the activity of reflection-in-action and the success of their sketch activity outcome. This study's data analysis suggested that designers' ability to remain engaged with their design inquiry affects their ability to develop their reflective practise inquiry. Through a combination of design exercise experiments and post-exercise interviews this conjecture could be tested.

2. Working with design practitioners over the course of a number of design projects it would be possible to build maps of individual practitioners' emotional tone ratings. Using simple and non-time-consuming self-assessment score systems, designers could periodically rate their experience against emotion categories. The scorecards could be correlated to their design project stage and the particular task they were undertaking. This study has drawn a number of conclusions about the experience of designing. Through a combination of correlated emotional tone maps and project stage interviews it may be possible to test, and develop, the findings of this study.
3. Utilising the talk-aloud method a protocol analysis could be conducted that encouraged designers to describe their experience and emotional tone while actively undertaking a design project. A series of protocol studies could further examine the experience of designers and would provide data using a different method to the research conducted in this study.

In this research project the phenomenon under study is expert designers' experience of designing. Eight cases representative of expert designers were studied. Based upon replication sampling logic, cases were selected where similar results could be predicted (Yin, 2003). The cases studied can be described as design practice practitioners and/or design commentators. Six of the participants were considered strong, positive examples of the phenomenon of interest; two of the participants, Blair and Thackara, were considered and discussed as atypical cases (refer to Section 3.5.5 for a discussion about the sampling logic and criteria).

The sampling logic and the cases studied represent limitations of this research project. When drawing conclusions and generalising from the findings it is important to be mindful of the sampling criteria and the cases that were studied. All of the findings were derived from a study of expert designers; therefore, the findings are not claimed to relate to the experience of all designers. This study did not enter into a discussion about the experience of designers: from different design domains; of different levels of experience; involved in projects of different lengths; with different educational backgrounds; who are considered professional and those that are

considered amateur. The findings of this study could be usefully tested by undertaking research with different sampling criteria. For example:

1. This study focused upon professional industrial designers. It would be constructive to investigate the differences in the experience of designing across people engaged in broader creative contexts and within different design domains, taking account of different educational training.
2. It would be useful to conduct a study that considered the timeframe of the projects that designers are involved in. Are the experiences of designers different when they are involved in design projects that span years compared to the experience of designers who are involved in projects which have a timeframe of months, weeks or days?
3. This study focused upon experienced design professionals. Further research may consider how the experience of students and the experience of junior designers differs to the experience of expert professional design practitioners. The hypothesis here might suggest that important differences exist between novice, competent, proficient, expert and mature designers in their responses to uncertainty. This research may provide understanding about the sublimation of students into a particular culture of practice.

The findings of this study are drawn from a particular research design, which aimed to test two conjectures and accessed data by asking expert designers a specific set of interview questions in the context of a semi-structured interview. In order to subject the findings of this research to further scrutiny it would be worth undertaking further research based around different interview questions. The following questions are not intended to be an exhaustive list but are indicative of the kind of question that could be asked to subject the conjectures of this study to further tests:

- At the outset of a design project how do you feel, how long does that feeling last and how does it transform as you begin your investigations?
- Could you describe the situations and the design activities that make you feel frustrated? Do you think that frustration is valuable or simply annoying? Why do you think you experience frustration in those situations?

- When you feel you have made a real break-through on a project could you describe how you were feeling prior to that moment, what you felt during the moment and immediately after it? As you integrated the insights you realised in that moment into the broader context of the project did that change the way you considered their value?
- When proposing design solutions, do you ever experience fear? If yes, why do you think you experience fear, what are you fearful of? If no, are there any situations within your professional practice that cause you to be fearful?
- What role do you think confidence plays in your personal practise?
- What role do you think uncertainty play in your personal practise?
- Do you ever question your own ability to adequately and appropriately resolve a design challenge?
- Do you think you ever frame the design problem in such a way as to make it more challenging?
- Do you ever feel like you have run out of motivation on a project, do you ever think to yourself 'I just don't know where to go' or 'what to do with this one', what do you do in those situations, how do you move beyond that.

6.4 – The study's contribution to new knowledge

Schön's work concerned the understanding of reflective practice. This study examines, and contributes new knowledge about, the experience of reflective practise. Specifically, this study contributes new knowledge about design activities by furthering our understanding about the experience of practising reflective practice within design practice.

The key contribution of this study is to further our understanding about, and help describe elements of, the experience of designing, relating those descriptions to the theory of design as reflective practice. This study has helped frame some of the activities of designers from the perspective of their experience and their relationship with uncertainty, providing a new way of thinking about design inquiries.

Based upon the reflections of expert designers, gathered in the context of a semi-structured interview, this study has contributed the following findings:

Describing the design experience

1. *As expert designers engage with a professional context that is uncertain, ill structured and ambiguous they personally experience uncertainty. As the uncertainty of the challenge is grasped, fear develops about their ability to resolve the design problem's issues and exploit its opportunities.*
2. *Iterative attempts to develop solutions can lead to frustration as the expert designer assesses his/her propositions as inadequate for resolving the design challenge. Over time, if solution propositions continue to be assessed as inadequate, dread is experienced as the expert designer questions his/her ability to resolve the design challenge. Mental paralysis can occur after this stage where the expert designer is unable to further explore the design situation.*
3. *A creative event, which can occur at any point in time and at any reflective practice stage, transforms the tone of an expert designer's experience. Creative events differ in their significance and effect and are the moments of realisation when an expert designer reframes his/her situation of practice. The experience of certainty and joy accompanies creative events, which are seen as uncertainty resolving, and returns the practitioner to a state of optimism and excitement.*
4. *Chaos events are an aspect of expert designers' experience. Chaos events initiated by people other than the designer unsettle the designer generating uncertainty, anxiety and fear by disrupting the coherence that they established.*

Designers' mindset

5. *Expert designers are optimistic about their ability to resolve design problems, see problems as opportunities and begin their task with positive excitement.*

Behaviours of good reflective practise

6. *The design process involves uncertainty resolution and generates emotional fluctuation and disquiet. Expert designers recognise the necessity, and are willing to continually face their feelings of dissatisfaction and psychological discomfort.*

Based upon the reflections of expert designers, gathered in the context of a semi-structured interview, this study has contributed the following conclusions. The conclusions focus on the conditions and use of creativity within reflective practice from the perspective of the experience of design:

1. *The design process of uncertainty resolution generates emotional fluctuation and disquiet. When operating in situations of volatility and ambiguity, expert designers use creative thinking as a coping mechanism to escape their fear and uncertainty. Creative thinking is used to frame and reframe the design situation in an attempt to create conceptual certainty and synthesis explored through propositional change experiments.*
2. *Contextualised by the challenge of the design situation the creative element of the design experience is stimulated by: iterative attempts to escape the discomfort of uncertainty and manifest clarity through the creative moment; attempts to protect the conceptual certainty and joy of a design proposition; and the need to do better and have their propositions accepted and considered valuable by other people.*

Based upon the reflections of expert designers, gathered in the context of a semi-structured interview, this study has contributed the following conjectures as suggested by the study's data analysis:

1. *The activities of ordering the design situation and committing to particular viewpoints trigger the experience of uncertainty and fear about the appropriateness of that judgement.*
2. *Expert designers require a balance between peace of mind and inquisitive discontent, continuing to strive and search for better personal performance and professional outputs while avoiding inertia due to fatigue, stress or conceit and avoiding awareness loss due to over excitement.*
3. *Expert designers are willing to and iteratively face their feelings of dissatisfaction and psychological discomfort in order to: iteratively generate more refined design proposals; manifest the ideal that they are positively contributing to progress; see the product or project through to a point of resolution; feel the thrill of the uncertainty resolving creative moment; and to enforce and build professional pride.*

4. *Expert designers desire and engage design problems of increasing complexity and challenge stimulating their experience of discontent and uncertainty, which they attempt to resolve through their professional activities.*
5. *Designing is an attentive conversation with the materials of the situation. Designing is limited by designers' ability to remain engaged with the design situation and their ability to develop the design situation. Expert designers develop strategies to encourage their engagement with the design situation and ensure that they continue to reflect-in-action and continue learning how to design.*
6. *Underpinned by inquisitive and critical curiosity, expert designers unfold into broader contexts and unfold from their own view on the world. Using creativity to reframe situations expert designers engage with multiple viewpoints. Personal empathy, commercial empathy and discipline empathy provide three channels through which expert designers undertake disciplined inquiries.*

6.5 – Chapter summary

The purpose of this chapter was to consider the findings of the study's data analysis, relate those findings to the literature identified in Chapter 2 and explicitly state how this study contributes to new knowledge and its understanding. Section 6.2 presented a discussion about the study's findings. Section 6.3 considered the speculative implications of the findings and considered the limitations of the research's design and considered further research. Section 6.5 presented the contribution of this study to new knowledge and its understanding. Chapter 7 presents a theses summary.

CHAPTER SEVEN - Summary

A presentation of the thesis's key arguments

7.1 – Chapter purpose

The purpose of this chapter is to present an overview of the thesis, to present the foundations, theoretical arguments, and logic developed through the thesis that have led to original contributions to new knowledge.

7.2 - The research project's foundations

Section 7.2 describes the research project's focus, intent, aim and audience. Refer to Chapter 1 for a more complete account of the research project's foundations. Refer to the Forward for a presentation about the motivations that initiated this research project.

7.2.1 – The research focus

The praxis of professional designers represents a vast and valuable body of knowledge that can be made explicit and investigated rationally and systematically. The focus of this study is the experiences and conditions that occur as expert designers practise reflective practice within design practice. The argument developed was that:

Design researchers have paid insufficient attention to the experience of designing, by improving our knowledge of this phenomenon a more complete and representative account of design activities would be achieved. If design researchers can develop a more representative account of design activities it will contribute to bridging the gap between design theory and design practice.

7.2.2 – The research intent and aim

Our current state of knowledge provides an incomplete and biased view of design activities. The intent and aim of this study is to develop our knowledge of design as it is experienced by providing descriptions of the design experience based upon the reflections of expert industrial designers.

7.2.3 – The research's audience

There are three audiences for this research: design researchers, design educators and design practitioners. For design researchers it is hoped that this thesis describes

an exciting research project, new knowledge and a convincing set of arguments that helps to signpost a fertile area for further research. The study is intended to benefit design educators by articulating conditions and experiences of expert designers' practise of design. These descriptions would be useful to communicate to design students and could be used to reflect upon curriculum content. The findings of this study and the substantive interview content are considered valuable for design practitioners as a stimulus and structure for reflecting upon their own practice and experiences, which, for design practitioners, may lead to a better understanding of their own practice-based knowledge.

7.3 – Theoretical arguments

Section 7.3 provides an overview of the main arguments and conclusions that were developed through Chapter 2.

7.3.1 – Insufficient attention has been paid to the experience of the designer

Section 2.2 presented an argument and literature review that validated the claim that design research has, to date, paid insufficient attention to the experience of designers and that this has lead to design methodologists presenting an unrepresentative account of design activities. Section 2.3 presented the case for why a study should focus upon the experiences of designers.

In Section 2.3, the following argument, made by Dorst (1997), was presented as a rationale for undertaking research into the experience of designing:

A reason to concentrate upon designers' experiences is that the decisions designers take in their multi-step process of designing are 'controlled' by the perceptions of the designers themselves. So the experiences of designers working on a problem are an integral and vital part of design activities. The understanding of their design experiences is an indispensable ingredient for any real understanding of design activities (ibid: 19).

It was suggested that under the constructionist paradigm of design as reflective practice the designer is placed in a central role in design activities. As such, under this paradigm, no explanation of design activities can legitimately be forwarded without including the shaping actions and influence of the designer. Therefore,

understanding the experience of designing is an essential component of a full appreciation of design activity.

7.3.2 – Reflective practice

Section 2.4 provides a review of Schön's (1983 & 1987) work on reflective practice. The following arguments were presented in Section 2.4.7, based upon the review of reflective practice theory, which led to sets of developed research questions describing potential areas of inquiry relevant to the study.

Schön describes the good reflective practitioner as being willing to enter into new confusions and uncertainties, but does not provide a good account of states of confusion or the experience of uncertainty and how these affect reflective inquiries.

Schön does not highlight what it is like, experientially, to be in a reflection-in-action moment. Nor does Schön focus upon the affect a practitioner's mental and emotional state has upon their ability to have effective conversations.

Schön's architectural protocol is described as an example of a reflective conversation with the materials of the situation, where the practitioner receives 'talk back' from the situation as they experiment. What role and function do practitioners' non-verbal physical and mental reactions play, do they also provide 'talk-back' on the inquiry?

Schön's description of designing - a reflective conversation with the materials of the situation - is very insightful but what is not highlighted is how temporal that connection can be: the mind often drifts away from a focused task.

7.3.3 – Design expertise

Section 2.5 reviewed literature focusing on skill acquisition and design expertise.

It was argued that the Dreyfus and Dreyfus (1980) skill stage 'expertise' is comparable to knowing-in-action and therefore it is difficult to conclude that design

as reflective practice can be treated as a coherent skill and that designing performance can be easily described in terms of skill acquisition.

After reviewing the work on design expertise by Dorst (2003b), Lawson (2004), and Cross (2001 & 2006), it was concluded that none of these sources relates descriptions of levels of expertise to the experience of designing and that there is not sufficient connection to the core focus of this study to develop specific research questions.

7.3.4 – What expert designers say about designing

Section 2.6 provides a review of literature that focuses on interviewing design practitioners about design activity. What follows are the main conclusions, presented in Section 2.6.6, which led to sets of developed research questions describing potential areas of inquiry relevant to the study.

In Lawson (1994), Cross and Clayburn Cross (1996) and Cross (2006) we find the experience of designing described with the terms: terribly fraught, painful, frustrating, desperate, hyper, panicky, and risky. It is indicated that these difficult and uncomfortable experiences seem to also be the joy of designing (Lawson, 1994; Cross, 2006). However, these descriptions are presented as a static description of design experience and do not describe contextual and situational components of these experiences and how they change over time.

Lawson (1994) highlighted the motivational role of ideals and ‘the big idea’, which help designers engage with the hard work, trauma and dissatisfaction that occur as part of their professional activities. Can further evidence be found, by discussing motivations and difficulties with expert designs, that supports or refutes the idea that ideals and ‘big ideas’ are used as supportive and motivational tools in professionally difficult and trying times?

Murray, in Cross and Clayburn Cross (1996), describes his operating situation as one of intense pressure and challenge; is this intense environment of pressure and the designer’s resulting stress a necessary component of the design experience that can be found in the working practices of other expert designers?

Davies and Talbot (1987) proposed the idea and described 'imago' experience, an illuminating state of being or consciousness whereby a designer realises an idea to be 'the' idea. The designer's experience of such a moment transformed frustration, insecurity and uncertainty into ecstatic joy and the addictive nature of such creative experiences was alluded to. Do designers, as suggested by Davies and Talbot, use creative thinking as a coping mechanism when faced with situations of extreme uncertainty and ambiguity?

7.3.5 – Designers and uncertainty

Section 2.7 provides a review of literature focusing on the relationship between designers and uncertainty. What follows are the main conclusions, presented in Section 2.7.4, which led to sets of developed research questions describing potential areas of inquiry relevant to the study.

Lawson (2006) put forward three different responses to dealing with uncertainties in the design process (procrastination, non-committal design, and throwaway design, avoidance was also forwarded as a further response). Do practicing designers recognise these concepts?

Design researchers have forwarded the concepts of 'attachment' and 'fixation'. Is there a relationship between attachment to concept solutions and avoidance of uncertainty?

Michlewski (2006) stated that 'designers appear content operating in situations of considerable volatility and ambiguity' and Dorst (1997) claimed that student designers must 'learn to be comfortable with the inherent stress and uncertainty' of being thrown into the design situation. Can we find evidence that expert designers learn to cope with the uncertainty and stress of designing; do they describe these experiences as essential and positive or as essential but negative? To what extent do expert designers become content with their own discomfort?

7.4 – The research design for an empirical study

This section provides an overview of the main arguments and conclusions that were developed through Chapter 3.

Section 3.2.2 reviewed the epistemologies of classical empiricism, classical rationalism and critical rationalism and stated that in this study, the epistemology of critical rationalism and the processes of conjecture and refutation would be followed.

Section 3.2.3 reviewed the differences between qualitative and quantitative research methods. In Section 3.3 the qualitative research methods of ethnography, phenomenological research, grounded theory, and case study were reviewed and it was concluded that the case study method and qualitative data were best suited and appropriate for this study.

Section 3.4 presented the study's conjectures, interview question template and research design. The conjectures for this study were presented as:

Conjecture One – Basic Premise

The tone of expert designers' experience unfolds through a spectrum of emotional tone phases over time with their designing activities.

Conjecture One – Stage One

Expert designers are optimistic about their ability to resolve design problems, see problems as opportunities and begin their task with positive excitement.

Conjecture One – Stage Two

As expert designers engage with a professional context that is uncertain, ill structured and ambiguous they personally experience uncertainty. As the uncertainty of the challenge is grasped, fear develops about their ability to resolve the design problem's issues and exploit its opportunities.

Conjecture One – Stage Three

Iterative attempts to develop solutions can lead to frustration as the expert designer assesses his/her propositions as inadequate for resolving the design challenge.

Conjecture One – Stage Four

Over time, if solution propositions continue to be assessed as inadequate, dread is experienced as the expert designer questions his/her ability to resolve the design challenge. Mental paralysis can occur after this stage where the expert designer is unable to further explore the design situation.

Conjecture One – Stage Five

A creative event, which can occur at any point in time and at any reflective practice stage, transforms the tone of an expert designer's experience. Creative events differ in their significance and effect and are the moments of realisation when an expert designer reframes his/her situation of practice. The experience of certainty and joy accompanies creative events, which are seen as uncertainty resolving, and returns the practitioner to a state of optimism and excitement.

Conjecture Two

The design process involves uncertainty resolution and generates emotional fluctuation and disquiet. Expert designers recognise the necessity, and are willing to continually face their feelings of dissatisfaction and psychological discomfort.

Section 3.4 stated that in a qualitative study the following open-ended questions would be used as themes to discuss and address the study's area of research and that the data generated by the subjects' responses will be used to test the above conjectures. The following is the Interview Question Template:

- 1) What is design?
- 2) What is design for?
- 3) Why do you design, what are your motivations?
- 4) In your design practise what do you consider important?
- 5) How do you judge the quality of a design project?
- 6) How do you judge the quality of your input into a design project?
- 7) How would you define or describe a good designer?
- 8) How do you develop and improve your design practise?
- 9) What are the difficulties that designers encounter?
- 10) What are the situations that put you in greatest turmoil?
- 11) What role do your emotions play while you are designing?
- 12) How would you describe your general condition when you feel you are working well?
- 13) There are a number of different activities involved in a design process, could you describe what your mind is like when undertaking those activities?
- 14) Are there any key moments during your life or career where you feel that your perspective or understanding of design has changed the way that you either do design or think about what design is?

The following was presented as the study's research design:

Epistemology – Critical rationalism (Popper, 2002)

Methodology – Descriptive multiple-case studies following replication not sampling logic (Yin, 1993; 2003)

Phenomenon under study – Expert designers' experience of designing. This defines the context of the cases under study

The selected cases – Mark Delany, Kevin McCullagh, Les Stokes, Adrian Stokes, Steven Kyffin, Tim Brown, John Thackara, and Sean Blair (refer to Section 3.5.5 for a presentation of the sampling rationale)

Unit of analysis – This is an embedded multiple-case study with multiple units of analysis (Yin, 2003: 40). The units of analysis are defined by the 2 conjectures stated in Section 3.6.2.

Data Type – Qualitative

Data collection method – Semi-structured interviews, using open-ended questions, audio recorded and fully transcribed (refer to Section 3.5 for more information about the data gathering rationale)

Analytical method – A cross-case discourse analysis structured by the units of analysis (refer to Section 3.6 for further detail)

7.5 – Data presentation

Chapter 4 presents the study's data. In Section 4.2 each case is presented individually, data are presented in the order gathered during the interview and the data sections presented are time and order coded. Each interview question is labelled to match the Interview Template Questions presented in Chapter 3, Section 3.4.2. The coding for each piece of data describes: the case number; the Interview Question Template question number; and the position of the data in response to the interview question. For example, data relating to case study one, Kevin McCullagh, from Interview Question Template question 3, which is the fourth piece of data for that interview question, would be coded: [1.3.4].

This chapter is a presentation of the substantive content of the interview and no analysis is entered and no conclusions are drawn.

7.6 – Data analysis

The purpose of Chapter 5 was to move toward addressing the study's broad aim and help increase our understanding of designing as it is experienced. In moving toward that aim the objective of Chapter 5 was to present a discourse data analysis of the study's conjectures. This section provides an overview of the main arguments and conclusions that were developed through Chapter 5.

7.6.1 – Testing Conjecture One

Section 5.3.1 presented the data relevant to Conjecture One in the form of a data matrix. Conjecture One, presented in Section 3.4.2, forwarded the conjecture's basic premise and detailed that premise through five stages. In Section 5.3.2 the stages of Conjecture One were analysed separately. Section 5.3.3 contained a discourse about the data identified as refuting Conjecture One. The following is taken from Section 5.3.4 – Conjecture One analysis summary:

Conjecture One proposed a series of emotional phases that are intimate aspects of designers' experience. The data analysis did not refute the basic premises of this conjecture, although data was identified that suggested important features of the experience of designing not described by Conjecture One.

An analysis of this study's data did not refute the following statement: *professional designers are optimistic about their ability to resolve design problems, see problems as opportunities and begin their task with positive excitement.* However, the data suggests that designers require a degree of peace, contentedness, stability and security in order to positively engage with the emotional phases that accompany and are part of explorative design.

An analysis of this study's data did not refute the following statement: *as designers engage with a professional context that is uncertain, ill structured and ambiguous they personally experience uncertainty and its discomfort. As the uncertainty of the challenge is grasped, fear develops about their ability to resolve the design problem's issues and exploit its opportunities.* In addition to these statements the data also suggests that the activities of ordering the design

situation and committing to particular viewpoints also trigger the experience of uncertainty and fear about the appropriateness of that judgement.

An analysis of this study's data did not refute the following statement: *iterative attempts to develop solutions can lead to frustration as the designer assesses his/her propositions as inadequate at resolving the design challenge.*

An analysis of this study's data did not refute the following statement: *as designers engage with a professional context that is uncertain, ill structured and ambiguous they personally experience uncertainty and its discomfort. As the uncertainty of the challenge is grasped, fear develops about their ability to resolve the design problem's issues and exploit its opportunities.* In addition to these statements the data also suggests that the activities of ordering the design situation and committing to particular viewpoints also trigger the experience of uncertainty and fear about the appropriateness of that judgement.

An analysis of this study's data did not refute the following statement: *iterative attempts to develop solutions can lead to frustration as the designer assesses his/her propositions as inadequate at resolving the design challenge.*

An analysis of this study's data did not refute the following statement: *over time, if solution propositions continue to be assessed as inadequate, dread is experienced as the designer questions his/her ability to resolve the design challenge. Mental paralysis can occur after this stage where the designer is unable to further explore the design situation.* The data indicates that mental paralysis can occur due to high levels of uncertainty and anxiety. However, the data also suggests that mental paralysis may be the result of fatigue or tiredness and not be due to the levels of fear and uncertainty that dread implies. Also, it is easy to conceive the situation whereby inertia and paralysis result from extreme excitement. The data indicates that expert designers manage the intensity of their experience and their efforts in order to be effective and avoid mental paralysis. If paralysis does occur expert designers have a range of strategies that they employ to resolve the mental blocks and inertia.

An analysis of this study's data did not refute the following statement: *a creative event, which can occur at any point in time and at any reflective practice stage, transforms the tone of an expert designer's experience. Creative events differ in their significance and effect and are the moments of realisation when an expert designer reframes his/her situation of practice. The experience of certainty and joy accompanies creative events, which are seen as uncertainty resolving, and returns the practitioner to a state of optimism and excitement.* The data analysis further suggests that: contextualised by the challenge of the design situation the creative element of the design experience is stimulated by: iterative attempts to escape the discomfort of uncertainty and manifest clarity through the creative moment; attempts to protect the conceptual certainty and joy of a design proposition; and the need to do better and have their propositions accepted and considered valuable by other people.

Data has been identified that refutes Conjecture One in its current form. These data segments suggest: a) that chaos events are significant in influencing the emotional tone of a designer's experience; b) that designers require a degree of peace to effectively engage with their design challenges; and c) that the conjecture should be formatted in a manner that avoids describing the emotional phases as rigidly consecutive. Chapter 6 presents a discussion about the study's findings and their significance.

7.6.2 – Testing Conjecture Two

Section 5.4.1 presented data that supported and data that refuted Conjecture Two in the form of a data matrix. Section 5.4.2 contained a discourse analysis of Conjecture Two using data that supported the conjecture and Section 5.4.3 contained a discourse analysis of Conjecture Two using data that refuted the conjecture. The following is taken from Section 5.4.4 – Conjecture One analysis summary:

An analysis of this study's data did not refute the following statement: *expert designers recognise the necessity, and are willing to continually face their feelings of dissatisfaction and psychological discomfort.* The analysis suggests that expert designers behave this way to: iteratively generate more refined design proposals; manifest the ideal that they are positively contributing to

progress; see the product or project through to a point of resolution; feel the thrill of the uncertainty resolving creative moment; and to enforce and build professional pride. The analysis suggested that: designing is an attentive conversation with the materials of the situation; designing is limited by designers' ability to remain engaged with the design situation and their ability to develop the design situation; expert designers develop strategies to encourage their engagement with the design situation and ensure that they continue to reflect-in-action and continue learning how to design.

7.6.3 – The data analysis findings

Section 5.5, The Analytical Results, presented fourteen findings. Five findings were based upon the units of analysis and were presented, with confidence, as descriptive statements of expert designers' experience of designing. Nine findings were presented as descriptive statements of expert designers' experience of designing as suggested by the data analysis.

7.7 – Discussing the findings

The purpose of Chapter 6 was to consider the findings of the study's data analysis, presented in Chapter 5, and explicitly state how this study contributes to new knowledge and its understanding. This section provides an overview of the main arguments and conclusions that were developed through Chapter 6. The findings were organised around four broad themes, which were used to structure the discussion.

1. Descriptions of the experience of design practise
2. Designers' mindset
3. Behaviours of good reflective practise
4. Conditions and use of creativity.

7.7.1 – Descriptions of the experience of design practise

Included under the discussion theme 'descriptions of the experience of design practise' were findings 2, 3, 4, 10, 11, and 14 (refer to Section 5.5).

Finding 2 (refer to 5.5 or 6.2.2) highlights that expert designers, in addition to imposing order upon their situation of practice and developing solution propositions, must cope with their personal response to the experience of uncertainty and their personal doubts that are given focus as they engage with challenging design problems. Finding 2 resulted from Conjecture One Stage Two being tested by the data analysis. In Chapter 5, data from three cases were forwarded that supported and illustrated this conjecture stage. Finding 2 was presented as a robust description of expert designers' experience of grasping and appreciating the uncertainty of their design challenge based upon the reflections of expert designers. Finding 2 contributes to new knowledge and furthers our understanding of design activities by describing the experience of expert designers as they first engage with the uncertainty of their design challenge

Finding 3 (refer to 5.5 or 6.2.2) provides a description of the design experience when the expert designer holds an evaluative stance that assesses their solution propositions as inadequate. Resulting from a conjecture that the empirical study was designed to test, Finding 3 stands as a robust description of expert designers' experience, based upon the reflections of expert designers. Finding 3 contributes to new knowledge by describing the experience of expert designers who continue to hold the evaluative stance over time that their solution proposals inadequately satisfy the solution and problem criteria

Finding 4 (refer to 5.5 or 6.2.2) describes the affect that creative events have upon a practitioner's experience. Finding 4 was discussed and related to the work of Davies and Talbot (1987) and the claim that the experience of creative events is addictive and that designers seek this eureka fix. Finding 4 resulted from Conjecture One Stage Five being tested by the data analysis. It is a finding that has resulted directly from a conjecture the research was designed to test. The data analysis did not identify any data that refuted Conjecture One Stage Five and therefore Finding 4 is presented as a robust description of the affect creative events have upon expert designers' experience, based upon the reflections of expert designers. Finding 4 contributes to new knowledge by describing the role creative events play in relieving the tension that builds over time as the expert designer engages with, and experience, the uncertainty and discomfort of the design situation.

Finding 10 (refer to 5.5 or 6.2.2), which was suggested by the data analysis, identifies experiential commitment as a source of anxiety. Schön highlighted the progress from the tentative adoption of a move or frame to eventual commitment, as a condition of good reflective practice. This study identified that progress as necessary and stressful. Cross (2006) stated that ‘designers will generate early tentative solutions, but also leave many options open for as long as possible; they are prepared to regard solution concepts as necessary, but imprecise and often inconclusive’ (2006: 54). It does appear to be a behaviour of expert designers that they will not commit to a solution proposition until it is completely necessary, thus leaving open the opportunity that a better solution can be articulated. However, the danger indicated by Finding 10 is that designers resist commitment in order to avoid the anxiety that it induces. The research design was not set-up to test the theoretical proposition that Finding 10 refers to and data that supports this finding were only identified in one case study. Finding 10 represents a conjecture about the experience of designing, which has been indicated by the study’s data and is recognised as worthy of further examination.

Schön’s theory of reflective inquiry illustrated how professionals explore and establish coherence when faced with ambiguous situations of practice. Finding 11 (refer to 5.5 or 6.2.2) relates to ‘chaos events’, events that undermine the order that a designer has established and committed to. These events appear to provide (or force) the opportunity for the designer to better understand the design situation and its context, to reflect, reframe and reconsider. Finding 11 does not refer to a conjecture that the research was designed to test. The data that supports Finding 11 was presented as data refuting Conjecture One; it illustrated an important omission in describing the emotional tone of reflective practice and the situations that affect it. To discuss this experience, and present the data that supports it, as refuting Conjecture One, searches of all the cases were conducted to identify all instances pertaining to the experience of chaos events and any data that refuted its significance. No data was identified as refuting Finding 11. Based upon the reflections of expert designers, Finding 11 describes the disturbance that results from chaos events and is presented as a robust finding that has been subjected to an attempt at refutation.

The data analysis developed Finding 14, which describes the importance of personal empathy, commercial empathy and discipline empathy within the practise and processes of expert designers. Finding 14 does not relate to a conjecture that the research was designed to study and test; nevertheless, through this study's data analysis it was recognised as an additional conjecture worthy of further examination.

7.7.2 – Designers' mindset

Finding 1 and 6 were included under the discussion theme 'designers' mindset'. What follows is a summary of the discussion presented in Section 6.2.3.

Finding 1 (refer to 5.5 or 6.2.3) describes the mindset of expert designers at the outset of a design project. Expert designers' underlying optimism and confidence appears to play a vital role in supporting their professional activities and provides an initial positive momentum with which to meet their professional challenges. It appears that creative events enforce this optimism and return the designer to this state of optimism refreshed and reinvigorated ready to face further challenges thrown up through their investigation of the design challenge. Finding 1 was derived from the data analysis of Conjecture One Stage One. Conjecture One Stage One was supported across multiple cases and a thorough search of the study's data could not identify data that refuted the statement. Based upon the reflections of expert designers, Finding 1 represents new knowledge that describes the frame of mind of expert designers at the outset of a design project.

Finding 6 (refer to 5.5 or 6.2.3) is about emotional and experiential balance. Inquisitive discontent plays a vital role in the design activities of expert designers. As a mental attitude it maintains the drive to continuously strive for better personal and professional performance. A designer's peace of mind seems to refer to: their assessment that their work satisfies the ideal that design contributes to progress, improves peoples' lives and helps make the world a better place; their positive perception of their value within their working organisation; and their ability to produce quality within the constraints of commercial enterprise. Finding 6 is presented as a conjecture about the experience of designing, which has been indicated by the study's data and is recognised as worthy of further examination.

7.7.3 – Behaviours of good reflective practise

Included in the discussion theme ‘behaviours of good reflective practise’ are findings 5, 6, 7, 12 and 13. What follows is a summary of the discussion presented in Section 6.2.4.

The data analysis strongly illustrated the value that expert designers place upon constant striving. One behaviour of expert designers, captured in Finding 5 (refer to 5.5 or 6.2.4), which manifests that value was their willingness to repeatedly engage with their uncertainty, dissatisfaction and psychological discomfort. Finding 5 is developed from the data analysis of Conjecture Two. This study has illustrated that the experience of designing can be uncomfortable, Finding 5 states that expert designers recognise the purpose and value of, and are willing to, engage and re-engage those feelings in order to continue a design project’s development. Based upon the reflections of expert designers, Finding 5 is presented as a robust finding that contributes to new knowledge by describing a behaviour of good reflective practise.

Finding 12 (refer to 5.5 or 6.2.4) captures the motivations that appear to support the behaviour described by Finding 5. Finding 12 does not refer to a conjecture that the research was designed to test but builds upon Finding 5 based upon the data analysis. Finding 12 is a conceptual construction presented as a conjecture about the experience of designing, which has been indicated by the study’s data and is recognised as worthy of further examination.

Finding 7 (refer to 5.5 or 6.2.4) details a tactic used by expert designers to stimulate their experience of uncertainty and inquisitive discontent; engaging with design problems of increasing complexity appears to ensure that expert designers’ experience of their design challenge is at the edge of what they are able to cope with. The data analysis suggests that designers actively stimulate the uncertainty they experience, either through the design challenges they pursue and accept or the way that they frame their design challenge, and then try to resolve and escape that uncertainty through their solution proposition activities. Finding 7 is a conceptual construction presented as a conjecture about the experience of designing, which has been indicated by the study’s data and is recognised as worthy of further examination.

Finding 13 (refer to 5.5 or 6.2.4) describes two sets of skills involved in reflective inquiry: 1) the skills and abilities used to develop and forward the reflective inquiry and 2) the ability to remain engaged with the design inquiry. Finding 13 does not refer to a conjecture that the research was designed to test; it is presented as a conjecture about the experience of designing, which has been indicated by the study's data and is recognised as worthy of further examination.

7.7.4 – Conditions and use of creativity

Findings 8 and Finding 9 were included under the discussion theme 'conditions and use of creativity' (refer to Section 6.2.5). What follows is a summary of the main discussion points.

Finding 8 and 9 are conceptual constructions that summarise and contextualise other findings from this study with broader design theory.

Finding 8 (refer to 5.5 or 6.2.5) states that the process of designing generates emotional fluctuation and disturbance. Finding 8 describes the situation of practice as outlined by Schön and then positions the use of creative thinking, in the process of uncertainty resolution, as a coping mechanism. It is suggested that creative thinking allows the designer to reconfigure the way they see their situation of practice, transforming cognitive and experiential uncertainty into conceptual certainty and effectively allowing them to escape their uncertainty and fear. The process designers use to explore their conceptual certainty and synthesis is described as propositional change experiments.

Finding 9 (refer to 5.5 or 6.2.4) aims to describe three elements of the designer's experience and the conditions for the creative element in design practise, it describes: 1) the push of attempting to resolve and escape the discomfort of uncertainty and the lure and pull of the creative moment; 2) the attachment to the creative event and the insight revealed through it that designers experience and the effort designers must make to convince themselves and others of the value that their propositions hold; and 3) the push to return to the situation of practice and the experience of uncertainty in their attempts to strive for better personal performance and professional outputs.

Findings 8 and 9 are not derived directly from conjectures that the research was designed to test, they are presented as findings, based upon the reflections of expert designers, that draw from the data analysis and summarise some of the most valuable contributions of this study to our understanding of design activities from the perspective of the design as it is experienced. Findings 8 and 9 are presented as conclusions based upon the findings of this study.

7.7.5 – Speculative implications and further research

Implied by this study's findings are the sets of suggestions, which are presented, in Section 6.3.2, to the likely audiences of this work. The groups addressed are: design researchers, design educators, and design professionals.

Section 6.3.3 considered the methodological constraints and limitations that the study's research design imposed, and proposed further research that could be conducted to further test the findings of this study.

This study drew from the reflections of expert designers, obtained using semi-structured interviews and open-ended questions. This method of data gathering raises questions about the accuracy of the data in representing the experiences of designers. This is an inescapable limitation of the research design. Section 6.3.3 considered further research that could subject the findings of this study to further tests by accessing data using different methods.

In this research project the phenomenon under study is expert designers' experience of designing. Eight cases representative of expert designers were studied. Based upon replication sampling logic, cases were selected where similar results could be predicted (Yin, 2003). The sampling logic and the cases studied represent limitations of this research project. Section 6.3.3 considered further research that could subject the findings of this study to further tests by undertaking research with different sampling criteria.

The findings of this study are drawn from a particular research design, which aimed to test two conjectures and accessed data by asking expert designers a specific set of interview questions in the context of a semi-structured interview. In order to

subject the findings of this research to further scrutiny it would be worth undertaking further research based around different interview questions. Section 6.3.3 proposed an indicative list of questions considered useful for subjecting the conjectures of this study to further tests.

7.8 – The study's contribution to new knowledge

This study contributes new knowledge about design activities by furthering our understanding of the experience of practising reflective practice within design practice.

The key contribution of this study is to further our understanding about, and help describe elements of, the experience of designing, relating those descriptions to the theory of design as reflective practice. This study has helped frame some of the activities of designers from the perspective of their experience and their relationship with uncertainty, providing a new way of thinking about design inquiries.

Based upon the reflections of expert designers, gathered in the context of a semi-structured interview, this study has contributed the following findings:

Describing the design experience

1. *As expert designers engage with a professional context that is uncertain, ill structured and ambiguous they personally experience uncertainty. As the uncertainty of the challenge is grasped, fear develops about their ability to resolve the design problem's issues and exploit its opportunities.*
2. *Iterative attempts to develop solutions can lead to frustration as the expert designer assesses his/her propositions as inadequate for resolving the design challenge. Over time, if solution propositions continue to be assessed as inadequate, dread is experienced as the expert designer questions his/her ability to resolve the design challenge. Mental paralysis can occur after this stage where the expert designer is unable to further explore the design situation.*
3. *A creative event, which can occur at any point in time and at any reflective practice stage, transforms the tone of an expert designer's experience. Creative events differ in their significance and effect and are the moments of*

realisation when an expert designer reframes his/her situation of practice. The experience of certainty and joy accompanies creative events, which are seen as uncertainty resolving, and returns the practitioner to a state of optimism and excitement.

4. *Chaos events are an aspect of expert designers' experience. Chaos events initiated by people other than the designer unsettle the designer generating uncertainty, anxiety and fear by disrupting the coherence that they established.*

Designers' mindset

5. *Expert designers are optimistic about their ability to resolve design problems, see problems as opportunities and begin their task with positive excitement.*

Behaviours of good reflective practise

6. *The design process involves uncertainty resolution and generates emotional fluctuation and disquiet. Expert designers recognise the necessity, and are willing to continually face their feelings of dissatisfaction and psychological discomfort.*

Based upon the reflections of expert designers, gathered in the context of a semi-structured interview, this study has contributed the following conclusions. The conclusions focus on the conditions and use of creativity within reflective practice from the perspective of the experience of design:

1. *The design process of uncertainty resolution generates emotional fluctuation and disquiet. When operating in situations of volatility and ambiguity, expert designers use creative thinking as a coping mechanism to escape their fear and uncertainty. Creative thinking is used to frame and reframe the design situation in an attempt to create conceptual certainty and synthesis explored through propositional change experiments.*
2. *Contextualised by the challenge of the design situation the creative element of the design experience is stimulated by: iterative attempts to escape the discomfort of uncertainty and manifest clarity through the creative moment; attempts to protect the conceptual certainty and joy of a design proposition;*

and the need to do better and have their propositions accepted and considered valuable by other people.

Based upon the reflections of expert designers, gathered in the context of a semi-structured interview, this study has contributed the following conjectures as suggested by the study's data analysis:

1. *The activities of ordering the design situation and committing to particular viewpoints trigger the experience of uncertainty and fear about the appropriateness of that judgement.*
2. *Expert designers require a balance between peace of mind and inquisitive discontent, continuing to strive and search for better personal performance and professional outputs while avoiding inertia due to fatigue, stress or conceit and avoiding awareness loss due to over excitement.*
3. *Expert designers are willing to and iteratively face their feelings of dissatisfaction and psychological discomfort in order to: iteratively generate more refined design proposals; manifest the ideal that they are positively contributing to progress; see the product or project through to a point of resolution; feel the thrill of the uncertainty resolving creative moment; and to enforce and build professional pride.*
4. *Expert designers desire and engage design problems of increasing complexity and challenge stimulating their experience of discontent and uncertainty, which they attempt to resolve through their professional activities.*
5. *Designing is an attentive conversation with the materials of the situation. Designing is limited by designers' ability to remain engaged with the design situation and their ability to develop the design situation. Expert designers develop strategies to encourage their engagement with the design situation and ensure that they continue to reflect-in-action and continue learning how to design.*
6. *Underpinned by inquisitive and critical curiosity, expert designers unfold into broader contexts and unfold from their own view on the world. Using creativity to reframe situations expert designers engage with multiple viewpoints. Personal empathy, commercial empathy and discipline empathy provide three channels through which expert designers undertake disciplined inquiries.*

Epilouge

A consideration of Buddhist meditation and its implications for the experience of design
practice practitioners

8.1 – Chapter purpose

The purpose of the epilogue to the main thesis is, to: a) introduce and describe the findings of a study into Buddhist meditation practices; and b) consider the implications and benefits that practising meditation might hold for a design practitioner by discussing the findings of the main thesis.

The epilogue is divided into three sections. The first section introduces meditation and Buddhism and is intended to orientate the reader and provide a context for a narrative examining meditation. The second section presents a narrative that outlines the findings of six semi-structured interviews with experienced meditation practitioners, which aimed to uncover what the experience of meditation is like. The third section presents a discussion about the potential impact that practising meditation might have on a design practitioner's practise of design practice.

8.2 – An introduction to Meditation and Buddhism

The following is intended only to orientate the reader; it is not presented as, nor intended to be, an exhaustive literature review.

Meditation can be classified according to the focus a practitioner takes (Perez-De-Albeniz & Holmes, 2000). Some meditation practices (mindfulness) use the field of perception and experience; others (concentration) focus upon a pre-selected meditation object. Another common way of categorising particular meditation practices is according to religion or lineage. As there are meditation practices, common among different religions it is important to be clear about both the type of meditation practice, which describes the activity and its aim and the tradition, which outlines the theoretical and cultural backdrop within which a person practises.

This study focuses upon three different Buddhist meditation practices: Samatha (Theravada Buddhism), which aims to develop calm and the ability to focus the attention single-pointedly; Vipassana (Theravada Buddhism), which aims to develop insight and wisdom through seeing the true nature of reality; and Serene Reflection Meditation (Soto Zen), an objectless practice, which aims to develop mindfulness and engage the practitioner fully in the present moment.

Common amongst Buddhist traditions is the recognition that the path to 'enlightenment' entails three types of training: virtue (ethical development); meditation (mental cultivation); and wisdom (wise understanding) (Harvey, 1990; Cooper, 1996). In order to orientate the reader, Fontana's (1998) provides a useful description of meditation:

Meditation is the experience of the limitless nature of the mind when it ceases to be dominated by its usual mental chatter [...] if the mind is continually clouded by thoughts, we are never able to experience it in and of itself. All we experience is the cloud-cover of its contents [...]. [The experience of the mind in and of itself] represents our true nature, a nature that is naturally calm and serene, unclouded by various anxieties and wishes, hopes and fears that usually occupy our attention. To experience the mind in this way is to experience the sense of being fully and vitally alive, yet at the same time deeply at peace within ourselves [...]. When the mind becomes calm and still in meditation, we come to a much deeper understanding of ourselves and of our true nature. By stilling and calming the thoughts, meditation also stills and calms the emotions. Thought and emotion are inextricably linked in our everyday lives. The mind goes over painful memories, current worries and concerns for the future, and as it does so it sparks off emotions such as regret, anger and fear. When the mind enters meditation, the emotions experience a new sense of peace. Even if troubling thoughts arise, much of their usual power is lacking. The meditator is able to observe them objectively without being lost in them and identifying with them (Fontana, 1998: 16-18).

The history of Buddhism spans almost 2,500 years from its origin in India with Siddhartha Gautama (Sanskrit) through its spread to most parts of Asia and in the Twentieth Century, to the West. Buddhism is a religion characterised by a devotion to 'the Buddha', 'Buddha's' or 'Buddhahood', where Buddha is used as a descriptive title meaning 'Awakened One' or 'Enlightened One'. The implication is that most people are seen, in a spiritual sense, as being asleep and unaware of how things really are. Feomn (1960) describes this waking condition:

The average person, while he thinks he is awake, actually is half asleep. By 'half asleep' I mean that his contact with reality is a very partial one; most of what he believes to be reality (outside or inside of himself) is a set of fictions, which his mind constructs. He is aware of reality only to the degree to which his social functioning makes it necessary. He is aware of his fellowmen inasmuch as he needs to cooperate with them; he is aware of material and social reality in as much as he needs to be aware of it in order to manipulate it. He is aware of reality only to the extent to which the goal of survival makes such awareness necessary. The average person's consciousness is mainly false consciousness, consisting of fictions and illusion, while precisely what he is not

aware of is reality. We can differentiate between what a person is conscious of, and what he becomes conscious of. He is conscious, mostly of fictions; he can become conscious of realities, which lie underneath these fictions (1960: 108).

As 'Buddha' does not refer to a unique individual, Buddhism is less focused upon its founder and places emphasis upon the teachings of the 'Buddha(s)', and the 'awakening' of human personality that these are seen to lead to. During its history Buddhism has used a variety of teachings and means to help people first develop a calmer, more integrated and compassionate personality, and then 'wake up' from restricting delusions, which cause attachment and suffering. The Buddhist tradition is maintained and upheld by the monks, nuns and lay practitioners who make up the Buddhist Sangha or community and the process of transformation is guided by the 'Dharma' which is seen as containing:

The eternal truths and cosmic law-orderliness discovered by the Buddha(s), Buddhist teachings, the Buddhist path of practice, and the goal of Buddhism, the timeless Nibbana (Skt Nirvana). Buddhism thus essentially consists of understanding, practicing and realising Dharma (Harvey, 1990: 2).

The Buddha's teaching was focused on the one purpose of showing how to find the end of suffering. He identified the cause of suffering as the afflictions of ignorance and desire and set out a path leading to liberation from these afflictions. In all schools of Buddhism, the final goal of enlightenment can only be achieved by cultivating wisdom, which directly sees things 'as they really are'. While such wisdom can be initiated by reflection on teachings from scriptures and living spiritual teachers, to mature fully it needs nourishing by meditative 'development' of the path.

Any type of meditation should be carried out under the guidance of a meditation teacher. Meditation requires personal guidance, as it is a subtle skill, which cannot be properly conveyed by standardised written teachings. Meditation is a skill, which requires one to learn how to 'tune' and 'play' the mind; regular patient practise is the means. Progress will not occur if one is lax, but it cannot be forced, what one can do is provide the right conditions, the appropriate application of: right effort; right mindfulness; and right concentration within the context of the specific technique being used.

Mindfulness is the process of bearing something in mind [...] with clear awareness. It is defined as not-floating away, that is, an awareness which does not drift along the surface of things, but is a thorough observation [...]. Mindfulness observes without judgement, without habitual reaction, but clearly acknowledges what is actually there in the flow of experience, noting its nature [...]. Mindfulness is crucial to the process of meditation because, without its careful observation, one cannot see things 'as they really are'. Buddhist meditation, in common with most other forms of meditation such as Hindu Yoga, aims to cultivate the power of concentration till it can become truly 'one-pointed', with 100 per cent of the attention focused on a chosen calming object. In such a state of Samadhi (concentration or collectedness), the mind becomes free from all distractions and wavering, in a unified state of inner stillness (Harvey, 1990: 246-247).

Most meditation is done in a specific posture, which traditionally is legs crossed in the half or full-lotus position, seated on a cushion if necessary, with the hands together in the lap, with the back straight but not stiff and the eyes half or gently closed. Figure 8.1 is taken from 'Sitting Buddha' (Morgan, 2004) and illustrates some of the common meditation postures.

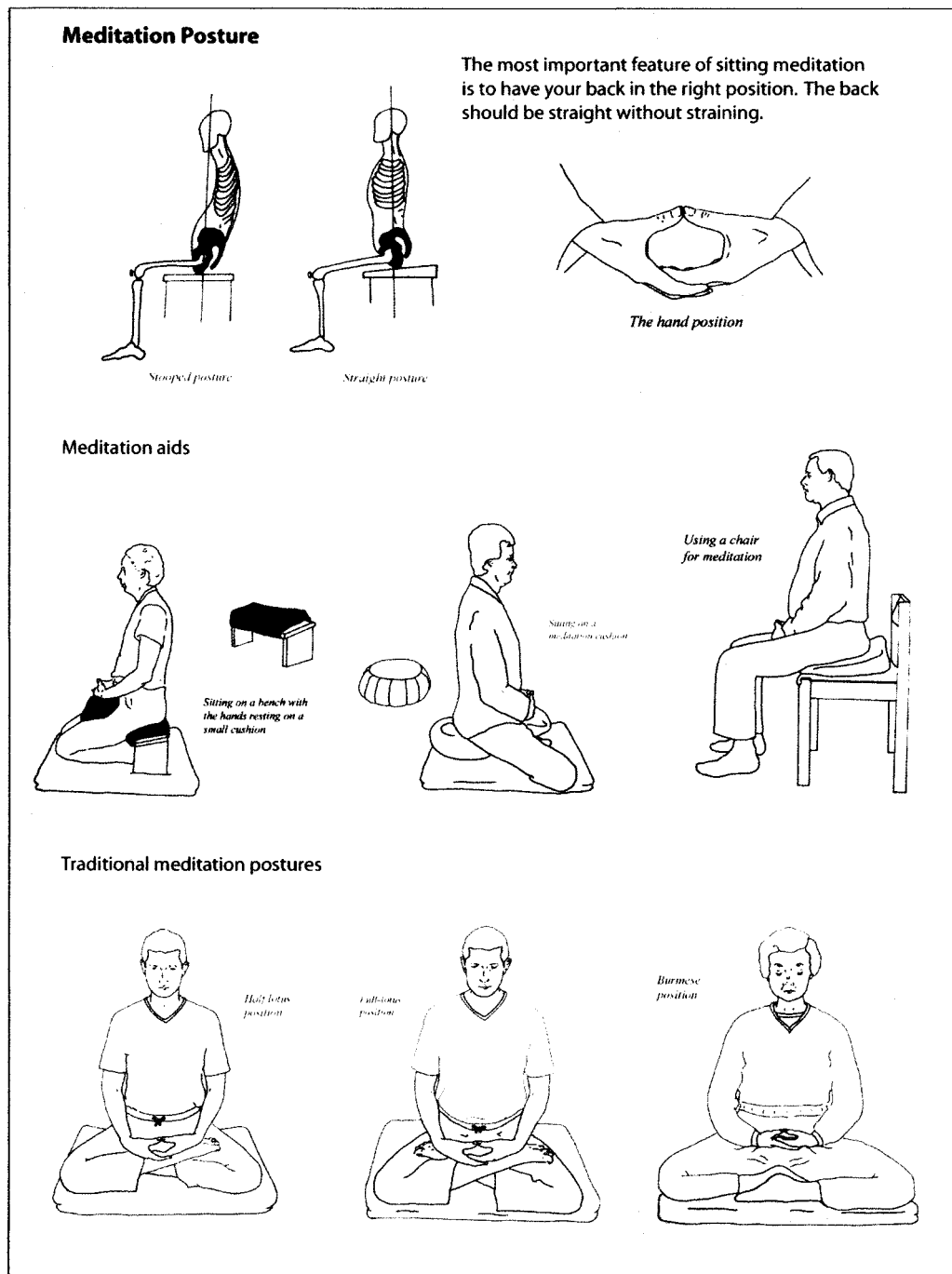


Figure 8.1 – Common meditation postures (taken from Morgan, 2004: 7-24)

The general effects of meditation are a gradual increase in calm and awareness. A person becomes more patient, better able to deal with the ups and downs of life, clearer headed and more energetic. He becomes both more open in his dealings with others, and more self-confident and able to stand his own ground (ibid: 245).

There are many differing meditation practices, which go under the conceptual label of Buddhism. Different schools of Buddhism describe and articulate a meditation practice or structure of practice that has been developed and refined with their school's evolutionary path.

This study focused on practitioners that practise Serene Reflection Meditation and practitioners of Samatha and Vipassna. These practices are briefly described below.

Serene Reflection Meditation

Serene Reflection Meditation is a non-structured practice associated with the Soto Zen tradition. The practice is to sit still with an open, alert and bright mind, neither suppressing nor indulging the thoughts and feelings that arise. There is no object of meditation, just sitting, through which the compassionate awareness of meditation is expressed and experienced directly.

This practice aims to develop mindfulness and engage the practitioner fully in the present moment. The phrase that best sums up this practice is 'just sitting'. Sitting in a meditation posture, awareness should be held wide and attentively. Whenever the mind is distracted by a thought, daydream or any other stimuli, either mental or sensory, attention should be brought back to 'just sitting' and the sensations associated with that activity. When a certain degree of mindfulness is attained mental creations do not have the power to completely distract the mind, they come into and leave awareness without changing the quality of mindfulness. Serene Reflection Meditation encourages one to sit neither trying to think nor trying not to think, just sitting. When this occurs you abide in peace and experience sensations and thoughts as they are.

There are two intertwined aspects to this form of meditation, serenity which is the letting go of attachment and reflection with which one looks closely at and investigates the things that arise (sensations, thoughts, feelings that one becomes aware of), noting the nature of their flow.

Samatha¹

Samatha, which means 'calm', 'peace' or 'tranquillity', uses a form of the ancient Buddhist practice of 'mindfulness of breathing': attending carefully to the in and out flow of the breath.

Samatha practice assumes that every person has the inner resources for developing deep states of calm, but needs tools and advice to help draw on and develop these resources. Experience shows that, beneath the 'surface' of the mind, which is full of restless energy, changing thoughts, emotions, worries and fears, there is a source of peace, calm, purity and strength. Samatha practice aims to gradually access, mature and stabilise this at a conscious level. It leads to:

- Less inconsequential meandering in the mind, and thus an enhanced ability to concentrate;
- Increasingly deep calm, so that one is less buffeted by the ups and downs of life and one's emotions; with calm comes uplifting joy and easeful happiness;
- Strength of mind and character increase, so that one is more 'one's own person', more in charge of oneself, yet there is also an increasing openness to and sympathy with other people;
- Increasing levels of mental clarity and awareness, which enable one to understand the workings of one's mind and emotions, and respond to life in more skilful, and subtle, ways.

Meditation is a practical skill, which anyone can develop, provided they are willing to devote a small amount of time and effort to it each day. Patient application gradually brings many worthwhile rewards.

Vipassna Meditation

Vipassna can be used in conjunction with Samatha. Samatha cultivates a calm clear mind that is a more sensitive instrument of observation than the normal state of mind. It thus provides a good basis for undertaking Vipassna or Insight meditation. In the calm setting of meditation one undertakes an investigation of one's experience as impermanent, unsatisfactory, and containing no Self.

¹ The following information on Samatha and Vipassna meditation is taken from notes provided by Professor Peter Harvey given out at his meditation classes.

In Vipassna practice, one first opens out mindfulness to observe immediate experience and recognise the quality of impermanence in it. In this, the important thing is to see and feel impermanence, rather than conceptually think and analyse. Then likewise one can explore things that have recently happened, and things that one relies upon. One can also explore the impermanence of the processes that make up the body and mind.

After investigating impermanence one can turn to look at the quality of 'unsatisfactoriness' in present or recent experience. This can be helped by conceiving 'unsatisfactoriness' in three general ways: 'unsatisfactoriness' as direct pain or suffering; 'unsatisfactoriness' due to change, frustration, disappointment etc.; and 'unsatisfactoriness' of conditioned things, imperfection and limitation.

Finally, one turns to investigate the quality of everything external and internal as containing no Self, or not-Self: changing conditioned processes that one only has limited control over; not a permanent 'I' or 'true Self'; not fixed in identity or nature; processes that happen according to conditions and are not 'owned' by anyone; patterns of events rather than substantial 'things'. Through investigating impermanence, 'unsatisfactoriness', and not-Self Vipassna practice aims to undermine greed, hatred and delusion, the 'I-am' conceit, craving and fixed views.

8.3 – What is meditation

8.3.1 – Section purpose

The purpose of this section is to introduce a research study conducted to develop an understanding of Buddhist meditation. It will present the findings of a series of interviews conducted with experienced meditation practitioners and it aims to communicate some important elements of the experience of meditation practise. What is presented is not intended to be a conclusive presentation on the subject. There will be no discussion about how the findings relate to Buddhist or scientific literature, nor will there be a discussion about the methodological integrity of the study. What is presented in this section is speculative. Extracts from the interview

transcripts will be presented to support the points made but there will be no discussion about the integrity or strength of the data.

8.3.2 – Interviewing experienced meditation practitioners

Between June 2005 and March 2006 a series of semi-structured interviews were conducted with six experienced meditation practitioners. Each of the interviewees were either associated with Theravada Buddhism and practised Samatha and Vipassna or Soto Zen Buddhism and practised Serene Reflection Meditation. These two Buddhist schools were selected, as they were cultures within which the researcher had practiced and studied since beginning this research project in 2002. The interviewees from the Soto Zen tradition included a senior Buddhist monk from Throssel Hole Buddhist Abbey and two lay ministers associated with Throssel Hole all with over 15 years meditation practise experience. The interviewees from the Theravada tradition included a respected British Buddhist academic, teacher and practitioner with over 30 years experience, and poet with 25 year's practice and a GP with 27 year's practice.

8.3.3 – Describing meditation

In order to present a coherent picture about meditation, three themes have been used to frame a narrative based upon the interviewee's transcripts. After reviewing the interview transcripts it became apparent that meditation practise could be described as two distinct but interrelated components. 'There is an aspect of calming, which is the serenity and letting go and there is the aspect of reflection, [...] the aspect of direct seeing, which [requires you] to be very alert' (Interviewee B). This means that meditation practise involves 'both stopping attachment to the flow of thoughts and also simultaneously having insight, seeing the nature of the flow of thoughts' (Interviewee B). The elements letting go and direct seeing are used as themes to present an understanding of meditation the third theme captures the relationship between one's meditation practise and one's life.

The themes have been developed by the researcher and are presented only as a means of creating a useful structure. The themes are:

- Letting go of attachment through noticing and accepting;

- Seeing the nature and conditioning of the flow of thoughts; and
- Life guided by meditation.

The following three sub-sections present the study's understanding of meditation based upon the interview transcripts of six experienced meditation practitioners.

8.3.4 – Letting go through noticing and accepting

Letting go seems to be a central concept in Buddhism and an intimate experience of meditation. Noticing, being aware and being present, plays a vital role in the process of letting go. Supporting this experience is the development of mental calm and clarity and the desire and discipline to remain present. Gradually this leads to the experience of being still what ever arises. The theme 'letting go through noticing and accepting' is presented through the passages: desire and discipline to remain present and connected; mental calm, clarity and stability; and being still whatever arises.

Desire and discipline to remain present and connected

Discipline plays a critical role in the life of a Buddhist, 'it's discipline isn't it; it's all self-discipline' (Interviewee D). In part that discipline is necessary to remain present and derives from the desire and recognition that being present is crucial to meditation.

[Meditation] for our practice, it's very simple, I would say it was just constantly bringing yourself back to the present, and there are various ways of doing that but that's basically what it is. Yeah, being there in the present moment [...]. The main practise is letting go and we always bring ourselves back to this very basic truth (Interviewee B).

The experience of being present can be usefully contrasted to the experience of being overly caught up on, or fixated with, small elements of experience to the exclusion of one's environment, surroundings and body. Being present is the experience of being in full contact with what is available from one's body, mind and environment. Typically it is the thinking, planning, fantasising and daydreaming that distracts and 'takes us away' from being present and connected. Interviewee B makes this point, 'I am beginning to wonder...[pause] a lot of the time before I did any meditation I have the sense of not even being there, of always being somewhere else'.

When a person is engaged in thinking they can appear 'in a world of their own' separated and cut off from others, themselves and their environment.

When you've got a lot of work, you become immersed, you become lost in this mass of stuff that's whizzing about in your life or in your office or whatever it maybe (Interviewee C).

For me, in particular, I seemed [once I began meditating] to live less in a cloud [...] I am a person who is quite orientated toward thinking so I would tend to get very caught up in my thoughts [...]. If you are absent at the moment you are not in the situation and so your possibilities for doing something useful in that situation are far less (Interviewee F).

The evidence, provided by the interviews, suggests that experientially, both in formal meditation and in daily life a desire to remain present is aimed for as an ideal. With that ideal set up and accepted, remaining present and connected revolves around cycles of: remembering (that one is aiming to be present); noticing (when one has lost contact, or is engaging with mental activity); and stopping (re-engaging with one's body and environment).

If you notice you're fantasising you just stop [...] if you notice you're fantasising about the future say, or worrying about the future it [is] almost like that noticing is already bringing [you] back [...]. But that doesn't belie the fact that it takes great effort to do this because we're so used to whirring about in our heads (Interviewee B).

The interviewees recognise that one can either have a wholesome relationship with one's thinking or one can have an unwholesome relationship. Thinking can act as a stimulant or a distraction, it can appear ceaseless and out of control and people can act and function 'on auto-pilot' while they engage with their mental thinking and visualising capacities. These issues are addressed through noticing, letting go of attachment to the flow of thought and remaining present. Remaining present and connected means: not becoming overly absorbed in one's mental activities; not cutting oneself off from the whole of one's experience. Being present requires foregoing the use of one's thinking, recalling and imagining capabilities as a mild distraction and makes one face the apparent separation and reality of what the present moment has to offer. The interviewees consider this process important and it requires that one must develop the right mental attitude.

[Letting go] well, I don't know what it means but how it feels is like: you're not really aware of letting go, it's more like something is there and then it's not there [...]. If I was in a steaming fury, which I am afraid still happens, it's interesting because I can go and sit formally, you know for a meditation period, and I will be steaming away and justifying it and then I will try and practise and at some point it suddenly stops and I don't know why the anger has stopped but it's not there anymore. I can't see [...] where it went or how it went because, well in a sense that's the teaching because anger is empty, there is no substance, so the fact that sometimes it's there and sometimes it isn't, is a teaching [...]. But there is volition in letting go [...] I think it has to be quite subtle. It can't be a 'go away', its got to be more like the action of opening the hand I suppose [...] a constant opening of the hand say rather than a grasping. I think that's the nearest analogy I can get to and I think that's one reason why we do things like bowing [...] we actually kind of do that in a sense, open [our] hand and lift the hand up to offer things because that seems the closest you can get to showing the mental attitude [...]. It's somewhere in the middle between not grasping on and not pushing away (Interviewee B).

During this study I engaged with people from two different Buddhist traditions. There appeared a notable difference between their responses while discussing the central importance of letting go to meditation. The differences are constructed as each school of Buddhism has its own conceptual framework for understanding and thinking about Buddhism and meditation.

What's happening in the practice is that somehow all the events and thoughts in your life are being processed, it's almost as if [they are going through] the eye of a needle, well that's the practice and everything that has happened in the twenty four hours gradually filters through that and somehow something is done with that I don't know whether you just sort of take note of it and let it go or whether you accept it or what (Interviewee A).

I would think of it as letting go of something you're attached to, you wouldn't need to let go if you weren't holding on [...]. It's interesting that the type of practice that I do looks more at building things up rather than letting them go but the art of building things up is limited by how attached you are to what you have built up, so you can only continue building things up if you continue letting go of your attachment to what has been built (Interviewee F).

Most of what happens in the practice comes from what we think of as inside, it comes from the mind and body of the person practising and because you're trying to take a constant object you observe all the mental and physical processes kind of passing through that observation, so you are just sitting there with the whole spectacle of the mind and body unfolding within, in front of, under your observation and although you try to let go of everything except your particular object, which is going to be your breath or you know a mental image or something you're not supposed to block out everything else you're supposed to acknowledge it and let it go and in the process of acknowledging it you actually observe (Interviewee C).

Serene Reflection Meditation, from the Soto Zen Buddhist tradition, is an objectless practice; letting go holds a central role in order for the meditation trainee to remain present and still whatever arises in that moment. Samatha, from the Theravada Buddhist tradition, often uses the breath as a meditation object; one applies the mind and one's mental energies in order to become concentrated on the breath, gradually building upon wholesome qualities and undermining unwholesome qualities. In this tradition letting go of attachment is still central but occurs as a natural consequence of their practise.

The interviewees do not condemn thinking and mental activity, they point out that, in their opinion, an unhealthy relationship with one's thinking capabilities can often be developed. The interviewees point out that, thinking is not being suppressed or devalued, what the meditation practitioners are attempting to address is the relationship that they have with their mental capabilities.

If you try to blank out the mind, you know, then what are you doing [...] [the mind is] kind of buzzing around and thinking up the options, as long as you can see that within, well that actually is part of the stillness, almost you've got the right relationship to it. Of course as soon as you get driven by it you've almost got the wrong relationship to it. I know that the Abbot here is very keen that we don't try to deliberately dull our minds or ignore mental activity (Interviewee B).

We can become attached to thinking as a stimulant and a distraction, and become separated from others, the environment, and one's experience as a consequence. To address this separation the interviewees develop a greater sense of connectedness by attempting to remain present in the moment. The process of simultaneously noticing when one has mentally reduced one's awareness and stopping the active engagement with mental activity, helps to maintain the experience of being present.

Mental calm, clarity and stability

This category describes the mental qualities the meditator develops through practise, how they are developed, the role they play and why they are considered positive. The following extract highlights that meditation is the development of wholesome mental conditions:

There are various different meditation systems but I guess that they will all be different ways of doing some careful work on the mind and emotions to develop more awareness [and] concentration, be more focused [and] be able to step back from things, not being pulled this way and that by things [...]. [Meditation] is not about thinking about one's mind and one's emotions particularly, but the technique I use: focusing on the breath to develop sustained focus, [focusing] attention on the breath; in order to be able to do that one finds the mind wanting to pull away, one notices thoughts and emotions disrupting the process. So in order to be able to learn how to keep the mind carefully, gently, sustained on the breath one becomes increasingly aware of what the mind is doing in a good and bad way and also there is certain relevant theory about good mental states to develop and negative states to watch out for, how to weaken the negative ones and strengthen the positive ones [...]. One gets better at dealing with [emotions] [...]. One learns how to gently steer how the mind is flowing in a more skilful, beneficial, calm, aware and kindly direction. One learns how not to get hijacked so much by negative reactions and emotions, one learns certain techniques of dealing with mental energy, various kinds, good and bad and also one practises certain skills [in] doing that, in working with that (Interviewee A).

In Samatha one aims to keep the mind gently focused upon the breath. In doing this task one pays close attention to how the mind reacts, identifying positive and negative reactions. The meditator works with their mental energies to undermine the negative reactions and states and strengthen and reinforce the positive ones. These are skills that one develops in meditation while creating the mental conditions which allow one's practise to become more refined and subtle.

Although the mind can react in a multitude of different and subtle ways there are five general reactions that the meditator becomes aware of and learns to undermine. 'The five hindrances [are] five common ways that the mind reacts to any focused, sustained task such as meditation but other things as well' (Interviewee A).

There is desire for sense pleasures: basically the mind wanting to think about or experience something more pleasant, interesting, alluring, or comfortable than what it is doing now. The mind reaching out for something to taste to sustain one in a way one wants. It is a kind of 'I want' reaction. Secondly, ill will [which is] the 'I don't want' reaction. Aversion, being in a bad mood, which might be directed at oneself, at what one is doing, at other people, but which kind of heats up the system and makes one rather tense, adverse, the mind's not properly flowing. Thirdly, dullness and drowsiness: a kind of mental inertia, laziness, can't-be-bothered-ness, a lack of willingness to engage properly with what one is doing, the mind going into neutral, fuzzy. Fourthly, restlessness or excitement, worry, and unease. Different forms of agitation, getting rather overexcited, the mind spinning of in various different directions from what one is doing or alternatively getting rather unclear or uneasy, uncertain, overly self-

questioning about what one is doing. Lastly, different translations, sceptical doubt, vacillation, wavering, an inability to commit and carry through with something, a fear of the unknown (Interviewee A).

The positive mental qualities and states developed encouraged through meditation practise are:

Calm which aids mental clarity, being able to see things more clearly. Greater awareness, [an] ability to step back from things, observe them carefully and closely but in a non-involved way applied to one's own bodily sensations, mental states, things that one sees around one, one's reactions to things. Qualities that can enhance either positive or negative states, but [which] are useful to be able to access: mental energy, joy for example. Other positive states [are]: loving kindness, compassion, an investigative attitude of seeing things clearly and carefully, applying one's attention to things (Interviewee A).

Meditation involves the cultivation of a positive, kind, compassionate, clear, calm, energetic, and attentive mental experience. The cultivation of this experience involves carefully observing the state of one's mind, mental energies and one's mental reactions, undermining unwholesome mental states and developing positive ones.

A broad way of looking at [meditation] would be, mental development and the first aspect of that is perhaps that you have to learn how to focus your mind upon what you want to focus it upon [...]. Most of us are tossed around either by our thoughts, our minds wandering from thing to thing or by our feelings, which may change, you may feel happy, angry, sad, but they do toss us, buffet us around and it's like a captain learning to master the seas. It's not that you stop the waves but learn to find a way to navigate through the waves so that you can then sail where you wish to sail (Interviewee F).

Learning to focus the mind involves, 'mental application, engaging the mind with the object [or] the task [and] re-engaging it each time it slips away' this constant mental engagement 'counteracts dullness and drowsiness, and inertia' (Interviewee A). Gradually the mind becomes calmer and less agitated, less easy to distract from the chosen object or task, attention is more sustained and stable, which facilitates further and closer careful observation and engagement with the chosen object or task. This is described as becoming concentrated or unified as one's mental energy focuses unperturbed on a single object.

The Soto Zen tradition also places importance upon one's mental state. The interviewees described the experience of a 'bright mind' and a 'dull foggy mind'. These experiences describe the mental receptiveness of a person, a bright mind clearly observes with a high level of definition, a dull foggy mind is hazily aware of thoughts, feelings, the body and environment and is much more passive in its engagement. When one's mind is bright, one notices more swiftly when one is engaging and fuelling a particular thought or feeling and can more easily stop and re-engage with one's task. A foggy mind drifts along with thoughts and feelings and the feeling of 'being present' is not strong. 'If you notice that you're drifting off into some slightly hazy state [...] you notice that and you don't let it, you don't drift along with it, there's a noticing' (Interviewee B).

It is reality that teaches us. If we are in a foggy state of mind we tend to just recycle our own fantasies, we are locked in a kind of cocoon and may not even be aware we are experiencing 'dukkha'. We have to know we are not satisfied before we can have the motivation to train and find the cause of dukkha (Interviewee B).

'As the mind becomes calmer you will see more clearly' (Interviewee F). Seeing clearly is essential in order to observe attachments, the fluctuations in one's mental condition and to see the constructed nature of the flow of thoughts and experience. Samatha meditation involves:

Stripping things down and working with something very simple, which is there all the time as a way of sharpening up attention, attentiveness and making one notice more quite subtle changes of attention and the flow of mental energy and what the mind is doing (Interviewee A).

Interviewee B makes an important point regarding mental states. Being present and having a 'bright mind' are viewed as wholesome and useful states, however one should be careful not to create the mental duality between a 'bright mind' being good and a 'foggy or distracted mind' being negative 'because the distracted mind is also part of the truth' (Interviewee B). Setting up this duality has been observed to lead people to try to be a certain way, craving particular states while repelling others creating tension and attachment, which counters meditation and the letting go process.

Mental calm, clarity and stability are important qualities developed through meditation practise, which help support the experience of being present. Effort,

commitment and patience are vital to sustain a bright mind and undermine dull foggy states. These qualities are seen by the interviewees as central in allowing the meditator to remain connected and to carefully observe and experience the present moment.

Being still whatever arises

When asked to define meditation some responses highlighted stillness as significant: '[it's] stillness I think [...] it's almost like an awareness of a stillness' (Interviewee E). Being still is a meditative experience that develops through: calming mental energies; repeatedly engaging with the present experience of sitting; and accepting the thoughts, feelings and sensations that arise as the experience of sitting. With the mind bright one sits still and accepts experience as it unfolds.

One of the things [about] meditation [is] to cleanse this karma, because this is what comes up [as thoughts and feelings] in meditation, things that you've done in the past, things that have been done to you in the past [...] we are taught how to deal with that, which is to just sit with it and it's very hard you know and normally you're '*ah blow this for a game of toy soldiers*', and you put the telly on and distract yourself. I think we just distract ourselves all the time, until you take up meditation and then you realise that distracting yourself doesn't do yourself any good. The thing is to really get to grips with all this stuff that we carry around with us, probably from before this life and during this life and this is what we're trying to do, [...] to clean that up so that hopefully we don't act, react in that way again (Interviewee D).

Being still involves 'unhooking' and simply observing the flow of thoughts without engaging them. By not engaging the flow of thoughts they are simply accepted. The experience of unhooking and being detached but intimate with one's thoughts and feelings provides the meditator with the insight that there can be two kinds of thought: deliberate thought and thought that simply appears. The experience of unhooking requires that one to renounce deliberate thought, which appears to generate the experience of greater mental clarity.

Our teacher often says it's like sitting underneath a motorway with the cars going over the top and you almost feel like the cars are the thoughts and you're sitting underneath going '*oh yeah*' and there is a sort of unhooking that happens. You can unhook and the more that you do it, the more you do unhook, the easier it becomes [...] [thoughts] just pop up and pass over you, they're still there, they don't stop, which is what I think a lot of people think at the beginning, '*well if I meditate they will stop*', they won't. It's just that you don't get carried along with them (Interviewee E).

Sometimes you do kind of get to that point and for me, it's like being on top of a mountain and it's just pure and also a sense of expansion. It's rather pleasant but it's not got to be held on to and it's not got to be expected (Interviewee D).

Interviewee B explains that the experience of being still is not the highest state of meditation because there is still the distinction between the observer and the observed, which generates the experience of duality as opposed to the ontology of non-duality that Buddhism asserts.

There is still the observer there so you can't say that this is the highest state of meditation but it's almost like you can remember something and then it's just gone, so quickly it's almost as though [thought is] hardly there at all (Interviewee B).

In the following extract Interviewee D describes her experience of meditation as sitting still whatever arises.

There's something in the bible that says, '*be still and know that I am God*'...[pause] and unless you do you're never going to see the beauty of the world [...]. You have to say, '*let it be*' and not try to push it away or think of always moving on [...]. If you're always like that you don't have time to look in, you're always looking on the outside and the main thing is to look inward [...]. Just letting things be you know when you're meditating, you don't sit down thinking '*oh I mustn't think*' and you mustn't start to have deliberate thought. So that is what it means, no deliberate thought, or try not to and if you do, just come back and try to stop yourself thinking. So it's just thought that's coming up, you're not following it, hopefully, and if you do you just say, '*bye-bye*' and come back, that's what '*neither trying to think nor trying not to think*' means [...]. It's just really kind of sitting still in the middle of it whatever it is. Mind you, you let it go if you can but if it keeps coming back, if this worry or whatever it is that's getting at you keeps coming back it's telling you something has got to be [done]. The way you deal with it is, it's not by thinking about it, it's by sitting with it [...]. Sitting still in the middle of it and let it, you know, [be] (Interviewee D).

Being still is an experience where the mind appears not to react to the content of experience where one does not actively and wilfully generate 'deliberate thought'. This experience can be very brief before a thought or feeling arises that disturbs that stillness, indicating attachment. It was described by Interview B that these experiences develop his faith that meditation does end suffering.

After three days of sitting, perhaps 10 sessions a day, struggling with it you will suddenly reach a point where it's kind of natural to do nothing and just be there

and you don't feel the pull any more to join the thoughts and this gives me a greater faith [...] you get to a point where you think right I am just going to sit whatever happens and I don't really care and at that point you can relax into it a bit more. For some reason awareness actually increases. If you don't care whether thoughts come through or not then they can go through quicker, do you see what I mean, because you just don't care [...] if you're attached, if you're attached to a state of mind, if you're striving to hard to have an empty mind, it doesn't work because you're trying to push them away, you've really got to relax with it and not care whether your mind is full or empty. Otherwise there's a struggle and I think that everyone finds during a Sesshin that at some point you have got to stop struggling (Interviewee B).

Letting go of and accepting attachments is a difficult task and as one meditates over an extended period of years, one explores and develops the ability to be still. Central to the experience of gradual stillness is acceptance. In order to let go of attachment one must clearly recognise and accept their attachments. One must accept whatever arises as their experience rather than clinging to certain elements and repelling others. Acceptance means being open to everything with equanimity and this can be a difficult and gradual process.

We do have to choose to not be involved; there is an aspect of renunciation. You could just sit there and spin the mind around. But there is a kind of saying no to that [...] I think that it does actually take years, for people to realise, it's ok just to sit there and not even try to do anything. Not try to reach for something [...] so with that faith it's ok not to do anything (Interviewee B).

In order to practise meditation one of the tasks, for a long time, is to become more accepting of oneself, [more accepting of] what is present in one's own mind and body and I think doing that inevitably means one becomes more accepting of other people and what is present in them (Interviewee F).

The process of 'letting go of attachment though noticing and accepting' is an active process in meditation practise and in the life of a committed Buddhist. The experience of meditation has been shown to involve the desire and commitment to remain present and connected bringing the meditation practitioners face-to-face with their own aversions and attachments. Mental calm, clarity and stability allows the meditator to pay close attention to their experience and mental condition, underpinning the process of letting go by noticing and recognising wholesome and unwholesome conditions, states and reactions. After clearly recognising one's attachments they must be accepted in order to let go, which gradually leads to the experience of being still whatever arises.

8.3.5 – Seeing the nature and conditioning of the flow of thoughts

The quality of attentive noticing, in part defines the act of becoming conscious of something, however also present in the act of noticing is ‘seeing what the thing is like’, noticing its quality and conditioning. ‘In the actual reality of meditation, stopping and noticing that your mind has drifted and seeing, seem to happen simultaneously’ (Interviewee B).

Seeing the nature of the flow of thoughts is described as integral to meditation and is intimately linked with and informs the process of letting go. Direct seeing is the reflective component of meditation practice and is underpinned by a person being very alert and possessing very clear awareness. The interviewees describe how clearly seeing the flow of thoughts, emotions, feelings and sensations allows them to really realise the insights of Buddhism. The following passages describe what meaning and learning the meditation practitioners construct from seeing the nature and conditioned flow of thoughts and the qualities and intentions they create as a consequence. The following passages are entitled: developing a non-judgemental equanimity, developing confidence and opening-up, and developing compassion and sensitivity.

Developing a non-judgemental equanimity

In Buddhist theory suffering is experienced because we crave certain situations, people, things, feelings, emotions, and mental states repelling others. In one’s body and mind there appears a complex set of preferences, traits, desires, needs and wants, which are applied constantly as one lives. These preferences are constantly being modified or reinforced as judgements are passed upon different elements of experience through attentive energy, thoughts, speech and actions. Making value judgements creates separation and is opposed to acceptance, evoking and reinforcing attachments. The observation of meditation practice shows that attachment and separation leads the individual to suffer and to cause suffering through the consequences of their behaviour, actions and speech. We treat the things we value with respect and attention, the things we consider of neutral value we treat with nonchalance or simply do not notice and there are the things we consider damaging, disgusting or dirty which we are sharply aware of but avoid and repel.

You realise that in some ways everyone is alike and you also realise that everyone is totally different and that's somehow a paradox, everyone is completely different and everyone is just the same, they're both true [...] [meditation practice and the above realisation has] made me less shy and nervous of other people [...] I think I'm warmer towards people than I used to be, I used to be a bit defensive (Interviewee F).

Unless you can look at a bum [or tramp] and know that he is the Buddha you're not making progress [...]. It just means that you're really wanting to see everybody [as Buddha, as equal] and not to discriminate, [it's] difficult not to judge, just to accept [...]. The Buddhist's say that we're all one and we're all different and this is what I am aiming for now [...] to be able to really know that in my heart and not just recite it like something I've read. That's the whole thing really, to know from your own senses and your own heart and not just trot out what you've learnt (Interviewee D).

Situations, things, people, emotions, feelings, thoughts, mental states and attentive energies carry no inherent value, yet because we are human embedded within social-cultural contexts a layer of attachments and their associated value judgements are applied consciously or unconsciously. The layer of value judgements is critical to the experience of meditation because it affects how we relate to thoughts and feelings and to others things and people. Judgements are seen as creating divisions and separations within the experience of one's body, mind and environment that do not inherently exist.

So, [meditation practise] gives you a broader perspective you might say [...] it means that one's perception is less filtered by me, mine and my concerns (Interviewee A).

You're ready to ultimately forgive other people for their foibles or faults or bizarre things that they do because you just realise that this is what it's like and that, you know, everyone is full of all these tendencies (Interviewee C).

The research implies that not judging provides an altered experience of feelings, thoughts and sensations because the mental attitude does not make a pleasant/unpleasant distinction and latch onto or repel. The non-judging process, in meditation, also works by noticing when judgements are being made as the mind pushes or turns away from certain experiences. When this happens the meditator re-engages with the meditation object/activity by bringing the mind back to the present experience. It is this continual process that helps one gradually become aware of, see beyond and undermine one's conceptual web of value judgements. This eventually

allows one to move toward actualising the ideal of viewing everything with equanimity and treating everything with equal respect and attentive care.

A lot of [meditation practise] involves learning to see more clearly, to observe in a [...] non-attached [way]: not clinging and not being perverse. So that one can learn to see things in more simple and uncomplicated ways and also ways which have less personal spin on it to do with what will puff me up or knock me down or whatever, just trying to see what is really going on. That is applied to one's own body and mind but it also helps one observe say things in nature more clearly [...]. [Meditation] helps you observe what is going on and the effects of what you and other people do and get a real feel for situations and what's effective (Interviewee A).

Meditation practise helps broaden attentive noticing, which allows more attachments to be noticed. Applying a non-judgemental mental attitude creates the qualities of being open and more accepting. Acceptance counters the creation of value judgements and their effect on shaping attentive noticing, which allows noticing to proceed with more equanimity. This in turn broadens attentive noticing. Interviewee B describes the momentum and force one's judgemental habits can have and how the important point is to really realise the truth of an insight and to continue to practise the insight, by putting it into action, not solely intellectually grasping it.

Someone can have some kind of realisation, for example knowing how harmful it is to judge people but that might take a while to filter through to [all the various] aspects of their life because of the force [because] there is a momentum to habit. A person may have a genuine realisation that they have been too judgemental but it might actually take them a few years to bring it into every part of their life (Interviewee B).

The following passages are Interviewee D's response when asked 'what does it mean to see things as they are' and Interviewee B's response when posed the challenge: 'surely we always see things as they are. How can that not be true?'

That's what it means, seeing things as they really are, don't be deluded, you've got this, that and the other, be glad, be happy, you're fortunate [...]. We are all deluded. People believe that if they have such and such a thing it'll make them happy, so they move heaven and earth so that they can get it and after a while the shine moves off [...]. It's a delusion, you think you're going to have happiness that way and it isn't [true] (Interviewee D).

I think that we often see things not as they are, [...] seeing things internally like anger. To see things as they are I have to acknowledge that I have got angry, so I can't deny it [...] to see things as they are [...] means, not to try to excuse

it by denying it but not to try and condemn it either, [not] to get judgemental about it [...]. There's a deeper insight that there's nothing wrong with any of it, again it's just the arising of activity in the stillness, it's just a kind of arising of activity within purity [...] if you realise that this is just the arising of stuff, because of what we are then desire is empty [...]. You see just a disturbing energy but it doesn't have much substance to it (Interviewee B).

The findings show that meditation allows the practitioner to closely and clearly observe the flow of sensations, feelings and thoughts. This activity helps illuminate the constructed and constructing web of attachments, value judgements and ideas that filter and condition one's perception of experience. The interviewees describe the limitations of a judgemental attitude, their aspirations to view with equanimity and connect to the differences and unity of life.

Developing confidence and opening-up

The passage entitled 'being still whatever arises' outlined how the meditation practitioner remained present without mental tension as thoughts, feelings, and sensations unfolded. It requires strength and bravery to not to turn away from unpleasant and uncomfortable elements of experience and not to indulge one's attachments and distractions. The evidence suggests that the confidence to embrace and open-up to the feelings, thoughts and sensations situations and interactions generate is aided by clearly seeing: the flow and impermanence of all phenomena, the constructed and empty nature of the 'Self', and consciously recognising the 'True Self' that the Buddhist religion points towards. During meditation practise one's perception of 'Self' changes. Interviewee C in the following excerpt describes this change and his perception of the consequences.

You have to learn a different kind of strength because when you're doing practice it's much harder than just armouring yourself or cutting yourself off, the sensitivity can be painful but it also has a value because understanding arises from it, compassion arises from it [...]. You become more comfortable with the idea that the self is not a fixed entity but a process or even a collection of processes because its a matter of observation. So you don't quite have that sense of a hard core to the personality that has to be maintained at all costs [...]. It makes it easier to accept suffering, pain [and] aging. I mean these things are very painful and they're unpleasant but in some ways having practised and having seen the impermanence of everything, the fact that everything comes into being sticks around very briefly and then falls apart again, you can kind of smile slightly and realise that of course the same thing is true of all the more extended constructions that are a part of your own life, I mean it's still painful but I think it's much more tolerable [...] I think that you

probably get a bit more brave and less worried about what people are going to think about you, because you realise that it's all passing anyway and it's a question of balancing things in yourself and balancing things in your work (Interviewee C).

Interviewee C makes the point that seeing impermanence, clearly observing that everything arises, comes into being, and passes makes it easier to accept the change and passing of emotions, thoughts, ideas, feelings, things, people and situations. The knowledge that a specific state will pass gives one the confidence to fully feel and learn from it. Being angry changes from being something to act upon, subdue or deny to being something to fully feel without engaging it with deliberate thought. The passing and change of things can still be painful but in fully experiencing the pain and discomfort the meditator begins to see and understand how suffering arises from attachment and aversion. This understanding is seen to generate compassion. Interviewee C also describes feeling braver as a consequence of perceiving himself as a collection of changing processes and not a core 'Self' that needs to be protected, defended or hidden. Interviewee D describes one of the aims of meditation as dropping this naïve understanding of 'Self' and through meditation coming to know the 'True Self', which is described as the 'True Refuge' and the true source of strength.

When you start to meditate it's [a] selfish [desire], you know, it's the ego really that wants to do it. *'I want to be like them and I want to be calm'*, you know and so it's the ego saying that but the idea is of course to drop off that self and so the true aim of meditation is to find or realise the 'Real Self' you know the 'True Self' the 'True Refuge', which is not only in us but it's all around us (Interviewee D).

Interviewee B concurred with Interviewee C and Interviewee D when he described his confidence to be able to feel because of the insight and connection with the 'True Self': the refuge that always remains still.

Once you're a senior [monk] you do spiritual counselling, [and] you get some very...[pause] horrendous stuff that people talk about and you are sensitive to it, it affects you deeply, but I guess you know there is a refuge. It's not that I'm not moved by it but that something isn't moved by it that remains still. That almost gives you the confidence to be able to feel. The next day I will feel quite awful, terribly sad, but there is also that sense [that] there's still a refuge, you know there's strength there (Interviewee B).

Interviewee E described a different context within which confidence and openness has manifested. Clearly observing the conditioned and constructed nature of the personality allows one to better let go of the wanting and desiring that one feels. This allows one to be more at ease with changing situations without the same level of concern and intended control about whether things are changing, as you want.

You know that it will work out, you know you will find a way through it, something will happen, something will turn up. It's not a hoping something will turn up, it's a knowing something [will turn up] and knowing you'll be alright [...]. Strange things happen and you end up in really strange situations, *'you'll cope, you'll be alright, you know it won't be that you can't cope, it'll be interesting'* (Interviewee E).

In meditation practise and in daily life, the interviewees observed that everything comes into being and departs: everything is impermanent. This observation is turned to examine every element that one considers 'Self'. What is revealed is that the empirical self is built from a collection of changing and interacting processes where no centre and no 'Self' can be found. In observing and confirming this foundation of Buddhist theory the meditator develops the confidence to open-up, feeling without tension, which in turn enables understanding and compassion.

Developing compassion and sensitivity

We're not looking for the cause of suffering as a thing, because the cause of suffering is not a thing it's a mental attitude, a mental habit that we're constantly generating the present really rather than something that happened in the past. The mental attitude that looks to externals as a cause of suffering does have benefits. Part of this is a misunderstanding of the 1st noble truth. The Buddha talked of Dukkha, which is better translated as 'unsatisfactoriness', as being caused by clinging and grasping. He wasn't claiming that poverty is caused by clinging, and his intention wasn't to address that area. He was more concerned with the fact that we are never satisfied even when external conditions are ideal (Interviewee B).

Meditation practice brings practitioners face-to-face with their own difficulties, pain and suffering. The reflective aspect of meditation practice means 'seeing things as they are' which is a method of experiencing a situation with less personal distortion of one's desires and opinions. Meditation practitioners carefully observe: the conditions that create suffering; the flow of thoughts that accompany and maintain their suffering; and the suffering that others experience as a direct consequence of their own thoughts, speech and actions. By becoming more aware and sensitive to

their own suffering and that of others the meditation practitioner learns about the conditions that create and undermine suffering. Important in this process is really realising and accepting the role and responsibility an individual has for their own suffering and that of others.

It is sometimes helpful first of all to notice [the consequences of your thoughts, speech and actions] give yourself time to notice it, *'oh my gosh that really is the case'* and then to think you know, *'I have really got to work on this'* (Interviewee B).

The understanding and realisation generated through a thorough observation and acceptance of the role one plays in causing suffering and the effect suffering has on one's life helps to develop a compassionate attitude. The realisation energises the resolve of the practitioner to make changes to their life in order to alter the role they play in their own suffering and that of others. This can be thought of as compassion-in-action.

The following quotes, demonstrate how accepting and coming to terms with the intentional and unintentional suffering and pain you have caused and experienced makes you more mindful of your behaviour, speech and thoughts and the attitude you hold regarding yourself and others.

It seems to be that gradually [as you practise meditation] you see things more as they are, but that isn't some kind of seeing things through some nice filter, because you can also see [that] there's an awful lot of real suffering going on in the world, terrible things, you know, and that almost feels more direct now as well [...]. If someone is angry with me I can see quite often that they are actually suffering and it's difficult to be angry back [...]. You can have a bit more compassion for the other person because you can see there is a suffering on their part [...] if you can see the suffering in the person you can see they're not wanting to do this, they're not wanting to be harmful they're being driven (Interviewee B).

It's just a case of accepting it and it's not going to make you happy but it makes you hopefully have more peace of mind [...] and of course when you meditate it hurts even more when you realise what you've done. It really does, you know, you realise when you've hurt somebody and you didn't really want to (Interviewee D).

It's sort of, being in the shit, you sort of realise what it is [...] and so you sympathise with other people who are in it and you remember and instead of going through a really bad time thinking, *'this is a really bad time'* you think *'ok lets learn from this'*. When you're meditating through really bad times you

learn what's going on and you see, you see a reason for things happening in a certain way (Interviewee E).

The theme 'seeing the nature and conditioning of the flow of thoughts' describes the qualities, observations and insights based upon Buddhist theory that the meditation practitioner personally develops. The interviewees described non-judgemental equanimity, confidence, openness and compassion as the qualities that result from clearly seeing the nature and conditioning of the flow of thoughts and experience. Equanimity is the mental attitude, which respects the unity and flow of life by not conceptually dissecting the world and overlaying value judgements. As practitioners' understanding and perception of Self alters, confidence and openness are developed as no core Self remains that needs to be maintained or protected. By constantly observing and developing understanding about the causes and consequences of suffering compassion is developed as a core element of the experience of meditation.

8.3.6 – Life guided by meditation

An analysis of the meditation-based interviews clearly shows that the meditation practitioners make no clear distinction between formal meditation and everyday life, meditation 'slowly permeates your life. People find they no longer want to do the same things they used to do' (Interviewee B). The evidence describes how the efforts made in formal meditation are applied in everyday situations and that through the interaction of meditation and life the participants perceive an approach to life, which is based on wisdom and compassion.

You have to constantly learn to sit formally and then see how that affects your daily life, your perpetual practise, and the daily life reflects back somehow, it teaches you. It's interesting that, it's almost like the daily life teaches you the wisdom not something separate, some separate wisdom from on high, its kind of the mixing. We call it the mixing and melding between meditation and the difficulties of daily life (Interviewee B).

The theme 'life guided by meditation' will be discussed under passages titled: meditation and life are seamless, learning to live from the perspective of stillness and changing one's approach to life.

Meditation and life are seamless

During the interviews the participants were asked 'what is the relationship between formal meditation and everyday life'. The responses clearly describe the perception of an undisrupted and continuous process, where 'it's almost impossible to separate them' (Interviewee B). The following section outlines areas of change as identified by the interviewees and how they feel about the relationship between meditation and everyday life.

They are completely interrelated [...] I don't think it is necessary after many years of doing practice to consciously think of a relationship between them. They will be interrelated because how one acts in the world will define, if you like, how settled one is in oneself in doing something of any variety. [Because of meditation] I have become happier, calmer, more fulfilled, clearer in very broad terms about the direction my life needs to go (Interviewee F).

Interviewee D described her morning period of meditation as setting the tone for the rest of the day. By sitting in formal meditation in the morning she literally sets her mind and body to work in a way that resonates with her understanding of the Buddhist theory 'right effort', 'right concentration', 'right thought', and 'right mindfulness'. In the morning it's a case of look [...] *'this is what I want my day to be, a day of meditation'* [...]. *'I'm Buddhist and I'm Zen and this is what I want my life to be'* (Interviewee D).

Interviewee E describes a number of related issues that she sees as the result of meditation practice. Interviewee E states that in her life meditation means learning not to create 'so much stuff'. This has been interpreted in the context of Buddhism as 'not creating suffering', not creating extra disturbing turbulence for both herself and for others. Interviewee E develops mindfulness and presence of mind, which has allowed her to change the way she responds to the thoughts and feelings she experiences and thereby influence the amount of suffering she creates.

[How has meditation affected your life?] Absolutely every way [...] it's just permeated everything, it's in my blood and bones, it's just everything. It is enabling me to see a way through my life, it's enabling me to see a reason, to put things in perspective, enabling me to be able to deal with things. You can [...] go into deep meditation more easily, you can become mindful, more aware of when you're not mindful and when things are going wrong, you can stop instead of leaving it a bit too late and then stopping. I find I am better at it and I am less likely to be sucked into things, I can step back more easily, I'm not

saying I do it every time but I know what I should have done [...]. I stop, I breathe, I sit up straight [...]. It steadies me, it stops me from opening my mouth and doing something I shouldn't do [...]. Sometimes I have feelings and I want to say certain things and when I stop and just sit still the desire to say and do certain things goes away, it just evaporates, and when I look back on those particular moments I think, *'yeah it's a good job you didn't act that way it's a good job you didn't say that'* but I thought it [...] I just didn't open my mouth and say it [...] I just didn't give it that extra energy that could have caused so much more stuff. I think meditation for me is learning not to create so much stuff (Interviewee E).

Interviewee A describes his changing relationship with thoughts and feelings and how this allows life to flow in a more simple way.

There is a sense in which [meditation practice] makes life simpler, less complicated [...]. You [still] get unhappy but it helps you deal with unhappiness that comes up, in a more effective way [...]. I think often if people don't have experience of something like meditation, in some form, they can experience a sort of panic or a turning to a defensive rigidity in the face of these things but of course that makes things a lot worse (Interviewee A).

Interviewee B provides a description of the relationship between formal meditation and daily life, which is both insightful and instructive.

People find that it just starts to set their lives [...]. It's not that we meditate and we find the 'mind of meditation', and then we try to carry this 'mind of meditation' around with us and try and be meditative. I mean that's maybe how it seems at first and that's a really good sincere start and it really helps but that's carrying an image of meditation around, which isn't meditation because meditation isn't an image so it's still trying to put this filter on things. It's knowing what meditation is and if meditation is literally not doing anything and not trying to put anything extra on top of it, then living in the mind of meditation is just doing things without putting anything extra on top of it, like any extra discursive thoughts [...]. So I guess that the depth of your daily life will [be] affected by how you understand meditation won't it, what actually is meditation? (Interviewee B)

According to the analysis meditation should not be thought of as something separate to daily life. Each individual practitioner develops their own understanding of what meditation is and this in turn affects the efforts they make during formal meditation periods and during each day. The efforts found in formal practice are highly likely to be echoed and evidenced in the daily life of the committed Buddhist.

Learning to live from the perspective of stillness

Letting go and seeing things as they are changes the relationship one has with the arising activity (thoughts, feelings, sensations) of one's experience. The change can be described as 'learning to live from the perspective of stillness'. Interviewee B describes this essential shift in perspective as follows:

It's to do with stillness and activity I suppose. If you do learn to actually meditate, it's as if, sometimes you can see that everything is happening within stillness [...] if you're able to see things from that perspective then you can see that even things like worry actually have a place, as long as you keep the mind [bright and present], and can see that this is happening within stillness and not to get pulled out by the worry (Interviewee B).

After the interview I wrote to Interviewee B hoping for clarification regarding a number of questions that were highlighted. On 4th January 2006 Interviewee B replied to my letter, which questioned 'learning to live from the perspective of stillness'. Below is Interviewee B's response:

The shift in perspective occurs when we stop judging our own grasping but see its nature. With the example of desire for things, this comes from seeing the impermanence and interdependence of our desires. The meditation shows us [that] our desires arise out of conditions and are constantly changing when new conditions come along. Therefore desire is not a 'thing' we need to either follow or reject – it is just the arising of conditions in the moment. We can then develop more equanimity in viewing our own behaviour and that of others. In terms of behaviour, this gradually helps to even out the emotional rollercoaster effect we experience if we swing from desperately trying to achieve our own desires to the opposite of judging them and trying to deny that they arise.

In relation to stillness and activity: I didn't mean to imply these were mere opposites. The analogy that is most effective is the waves on the great ocean. The waves are the appearance of emotions or 'activity'. But the waves are always still 'water' – i.e., part of the great ocean. The best source is Keizan's 'How to do Pure Meditation' – P193 Buddhist Writings (Shasta Abbey Press) "Water and wave have no separate existence; movement and rest are not different."

It is so easy to use stillness and activity as opposites i.e., more stillness is better. But as Keizan points out stillness and activity have no separate existence. Zarzen is stillness/activity. We talk of 'stillness' especially at the beginning because we do have to put effort into calming the distracted mind. But 'stillness' is a limited concept only (Interviewee B).

Interviewee B is describing a fundamental aspect of the experience of meditation, describing how the shift in perspective is developed and how it manifests in behaviour. The shift in perspective shows experience as a continuous flow of stillness and activity, where activity arises simply because of the constructing conditions of that moment. This shift fundamentally changes the way one understands and relates to one's unfolding experience and the arising activity of thoughts, feelings and sensations. Interviewee B described this shift as obtaining 'the right relationship to activity'. The wrong relationship is where one lacks this perspective and non-attachment and is driven by one's arising activity as a consequence.

Changing one's approach to life

There is a sense [...] in which the end does not justify the means. How you do something is often as important as what you're doing. If you're going to tread on other people to accomplish it then it's not worthwhile, it's problematic. If you trumpet yourself because you have done it, then it's problematic. There are some things that by their nature are problematic as goals, if it involves killing or hurting human beings or animals or whatever and there are lots of things that are relatively neutral and can be done in a mindful, calm, good humoured, kindly way or not. Just calmly keeping your cool, so that when you do respond it's in an appropriate way (Interviewee A).

There is a real emphasis amongst the meditation practitioners interviewed that the approach adopted to resolving life's difficulties is vitally important and that the approach should be defined by a calm and kind awareness. The following excerpt is taken from the interview with Interviewee F and describes how he feels he has changed as a result of practising meditation.

When I first started meditating I didn't necessarily notice any enormous difference [...] as time went on there was also [a] seeing more directly how the [...] sense of calm and integratedness that could come from practice could then also be brought into everyday situations and how when that happened it was not just useful for me but also useful for the other people who were present [...]. As one experiences one's own mind and body differently one experiences the world differently. If I am happy and in a relaxed state what I will see in the physical world and in the people around me will be quite different to what I will see if I am in a really bad mood and I am quite agitated, completely different [...]. If there is a degree of agitation [present] then it is difficult to know clearly what the best thing to do or to say [is], while if we are calm and happy it is much easier to know what the best thing to do or say is [...]. [Meditation practice] has made me look much harder at my actions, whether they have a positive or negative effect both on other people and on myself [...]. I think of a positive effect as something that generally leads in the direction of

happiness, understanding, peacefulness and something negative generally moving in the direction of cloudiness, irritation, anger, [and] attachment [...]. I think that dealing with people is actually challenging and in some ways one of the most challenging things we do because there are always going to be things about the way other people relate to us which we're uncertain about or that irritate us and just trying to keep open in oneself to what is happening, open to the kind of feeling that, for myself I think of it as being open to the feeling that the interaction generates (Interviewee F).

The theme, 'life guided by meditation' attempts to capture the experience meditation practitioners aim for as an ideal expression of meditation in daily life. The category described the continuous flow of meditation from formal sitting into daily life and from daily life into formal sitting. The qualities, insights and efforts developed in formal sitting are applied and integrated into all aspects of daily life and individuals' interactions.

8.3.7 – Conclusion

According to this study, which focused on Serene Reflection Meditation, Samatha and Vipassna, in formal meditation practise practitioners refrain from engaging in conceptual activity and the practitioner uses their efforts to carefully observe the conditioned construction of experience. Knowledge and conceptual activity (thought) are dualistic, based on symbols representing 'experience', on abstractions. Knowledge and thoughts are always a relationship between the knower and the known, about subject and object. Concepts define and as such are limited abstractions because defining of limits is a mind-made process. Through the practise of meditation, practitioners develop and refine the ability to see through conceptual definitions in a process that calmly and carefully observes, gradually unfolding and un-defining. Experience is recognised as not containing 'things', 'Self' and 'other' but appreciated as being a united conditioned flow. Gradually practitioners of meditation recognise non-duality and Buddhism (Buddha, Dharma, and Sangha) helps guide one in living in accordance with that experience.

8.4 – Meditation and the experience of designing

Based upon an understanding of meditation, as presented in this epilogue, what follows is a consideration of the possible impact that meditation practice could have upon the experience and practise of a design practitioner.

This study proposed the conjecture, based upon the study's data, that designing was an attentive conversation with the materials of the situation. Based upon a well-known quote by Schön (1987), the conjecture proposed that expert designers develop strategies to encourage their engagement with the design situation. This conjecture highlights that designing, as defined by Schön, only occurs when attentive awareness is engaged with design activities. The study into meditation indicated that awareness can be: difficult to focus for sustained periods of time, experienced with different intensities of calm and agitated and experienced with different levels of attentiveness. Through focused meditation practice a practitioner learns how to develop the qualities and conditions that create attentive awareness and builds resistance to disturbing stimuli and experiences. It is proposed that:

1. 'Being present' is important for design practitioners. It would aid clarity and presence of mind during the reflective practice steps of naming, framing, moving through explorative action and evaluating through reflection. It would afford a better grasp and appreciation of the designer's experience as they engage with and attempt to resolve the experience of uncertainty generated by their design task.
2. Through the practise of meditation a practitioner learns how to create the qualities and conditions that allow one to remain present.
3. Meditation would benefit design practitioners by helping them practise, in a focused way: the skills of engaging with a focused task; developing the mental qualities and conditions that support 'being present'; and learning how their mind reacts to efforts and attempts to focus it.
4. Meditation would support design practitioners in the activity of design by providing a context to recognise the difficulty and importance of being present. It would encourage the motivation to develop greater discipline in remaining engaged with the task situation and encourage an awareness of when and why awareness wanders from the task situation.

This study has illustrated that during the designing process designers experience a range of emotional tone phases. An examination of the study's findings (refer to Section 5.4, Analytical Results) describes the emotional tone phases as: (Finding 4) certainty and joy, (Finding 1) optimism and excitement, (Finding 2) uncertainty and

fear, (Finding 3) frustration, and dread and mental paralysis. During the interviews the experience of design projects was described as a turbulent 'emotional roller coaster ride'. This study proposed the conjecture, based upon the study's data, that designers require and balance peace of mind and inquisitive discontent. This conjecture suggests that these qualities allow the designer to continuously strive for better personal performance and professional outputs while avoiding inertia due to fatigue, stress or conceit and avoiding awareness loss due to over excitement. The study's findings and this particular conjecture represent a dichotomy. The findings describe the experience of designers as emotionally turbulent and the conjecture describes designer's as requiring emotional balance to perform well. Perhaps, expert designers regain their perspective and balance quicker than others and perhaps they are affected less, or less easily, than other designers. Based on the presentation above, meditation practitioners become less buffeted by their emotions as they learn to calm the mind and observe the conditions that give rise to emotion and observe their passing and impermanence. By sitting still and remaining calm, meditation practitioners learn that their thoughts and emotions do not require a response nor do they need to deny they exist or repress them. It is proposed that:

1. Design practice provides the conditions that create emotional turbulence and fluctuation for design practitioners.
2. Design practitioners recognise the value and benefit of peace of mind and experiential balance.
3. Practising meditation helps generate peace of mind.
4. Practising meditation helps practitioners to treat their experience with greater equanimity therefore becoming less driven by their thoughts and feelings.
5. Meditation would benefit design practitioners by providing an opportunity to: examine how their mind and bodies react to their thoughts and feelings; learn how they actively sustain or repress certain mental or emotional content; and practise not indulging or feeding their mental or emotional content. This practise would develop skills for responding and behaving when stressed and would benefit design practitioners by encouraging balance, peace of mind and confidence to fully feel the experience that conditions and interactions create.
6. The training and practise afforded by meditation would benefit designers when they experience frustration, uncertainty, discomfort and self-doubt. It would develop skills useful when experiencing chaos events and handling

fear associated with committing to design directions. Additionally, the research indicates that it would help designers recognise these experiences and their conditions in others and may lead to more skilful interactions and interpersonal relationships.

7. Meditation is letting go of attachment to the flow of thoughts through, noticing and accepting, and undermining the views and conceits, which support attachments and dissatisfaction. This process would allow designers to gradually accept and become content with their own dissatisfaction, psychological uncertainty and emotional fluctuation.

This study has described the positive perception that designers associate with the creative event. Davies and Talbot (1987) described the experience of creative events as addictive and suggested that designers seek these eureka fixes. A conclusion of this study is that the creative element of the design experience is stimulated by: iterative attempts to escape the discomfort of uncertainty and manifest clarity through the creative moment; attempts to protect the conceptual certainty and joy of a design proposition; and the need to do better and have propositions accepted and considered valuable by other people. This conclusion describes aversion to discomfort and uncertainty and the desire for excitement, joy and security experienced with conceptual certainty in the creative event as driving and influencing a design practitioner. It is possible to see this as beneficial to a design project; however, it can also be viewed as a limiting factor for exploration and experimentation. It is proposed that:

1. Designers' activities and experience is influenced by their attachments and aversions.
2. Designers are adverse to the discomfort of uncertainty, frustration and self-doubt. Designers desire the excitement, joy and security that are experienced with conceptual certainty in the creative event and are attached to the ideas and insights that are revealed in the creative moment.
3. Meditation practise would help designers recognise the influence that their desires, attachments and aversions have upon their design experience, design processes and their understanding of specific design situations.

4. Meditation practise would help design practitioners to notice and accept their desires and aversions; it would help designers to notice the conceit, volition and ideas that sustain their attachments.
5. Though meditation practise design practitioners would influence their design experience, ensuring that their practice was not driven by attachments and aversions to uncertainty but was a balanced response based upon their perception of the requirements of the design situation.

Reflective practice theory describes the influence and role that designers play in shaping and affecting their professional situation of practice. A designer's understanding and perception of the design problem and context influences what is named and how the challenge is framed. A designer's imagination plays a vital role in exploring the frame they created and evaluating their actions and outputs through critical reflection. Designers are a part of any design problem. The study into meditation, conducted in this project, describes seeing how experience is conditioned as an important element of the practice. Meditation practitioners pay careful attention to how their experience arises because of conditions. Meditation practitioners describe how they learn to recognise how their state of mind affects how they experience and relate to other people; they learn how they influence and affect the situations they perceive. It is proposed that:

1. Designers are part of any design problem.
2. Designers benefit from recognising the direct influence they have on the design problem, its solutions and evaluation.
3. Practitioners of meditation pay close attention to their experience in a calm setting they observe how the flow of thoughts and experience is conditioned.
4. Practising meditation would offer benefit to design practitioners by providing a setting to observe how the flow of their thoughts is conditioned. This would benefit designers, as it would help develop further insight into their knowing-in-action and reflection-in-action behaviours.

8.5 – Summary

This epilogue to the main thesis has considered the benefits that a design practitioner may gain from the practise of meditation. It has described a study conducted to explore the mental training and consequences of practising meditation.

It has presented a narrative describing meditation based upon six semi-structured interviews with experienced meditation practitioners. In that narrative, meditation was described as a process of letting go of attachment through noticing and accepting and seeing the nature and conditioning of the flow of thoughts. The narrative also discussed the learning that occurs through meditation practice and the relationship between a practitioners' formal meditation and their daily life.

It was suggested that meditation would benefit design practitioners in four different ways:

1. Practising meditation would stimulate the motivation to remain present and avoid or undermine hazy states of mind. It would help a design practitioner to develop the discipline, qualities and skills that allow one to sustain an attentive awareness with their task situation.
2. Practising meditation would help designers cope with the emotional intensity and fluctuation that accompanies the practise of design practice. It would allow designers to gradually accept and become content with their own dissatisfaction, psychological uncertainty and emotional fluctuation. It would help designers to develop more peace of mind.
3. Practising meditation would draw attention to the role that desires, attachments and aversions have upon their design experience, design processes and their understanding of specific design situations. It would help design practitioners to let go of their attachments increasing the balance with which they respond to the design situation.
4. Practising meditation would provide a context for observing how experience arises dependent upon conditions. It would potentially aid the design practitioner in developing a more sophisticated understanding of their own influence on the situation of practice and the design problem.

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A list of the literature and source material referenced in this thesis

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AN INVESTIGATION INTO THE EXPERIENCE OF DESIGNING

VOL. 2 of 2 (Appendices)

Nicholas Roland Spencer

PhD

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AN INVESTIGATION INTO THE EXPERIENCE OF DESIGNING

VOL. 2 of 2 (Appendices)

Nicholas Roland Spencer

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A thesis submitted in partial fulfilment of the requirements of the
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Research undertaken in the School of Design

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APPENDIX A - Interview Transcripts

Transcripts from the expert designer interviews

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1.1 – Kevin McCullagh

Interviewer: Nick Spencer

Interviewee: Kevin McCullagh

Date: Wednesday the 18th of January 2006

Location: Plan Design, London

Time: 1403hrs

Interview Template Question One

Time: 00 minutes 13 seconds

Interviewer: What is design? What does design mean to you?

Kevin: I would say in general terms, [1.1.1] **it's the mark of humanity**, [1.1.2] **it's conscious problem solving**, but I would normally differentiate it from the execution of the solution.

So [1.1.3] **it is about problem solving and planning the execution**, but we're interested in professional product design. So [1.1.4] **professional product designers, are for me, people who have gone through some formal training, have a conscious understanding of the processes by which they solve problems and they have also gone through some kind of Darwinian selection process** where, there are a hell of a lot more people trained to be designers than get to be designers, so they're, by that process, they're pretty good at it. Whereas other people can just train and

become whatever they want to do you have got to be pretty dam good to become a professional designer.

Interview Template Question Two

Time: 01 minutes 25 seconds

Interviewer: What is it for?

Kevin: From a personal perspective or a social or an economic perspective?

Interviewer: It would be interesting if you could take it from a number of different stakeholders viewpoints, if we could maybe begin with personal.

Kevin: Ok, from a personal perspective... what is it for... umm could I rephrase that from a personal perspective to, what motivates me?

Interviewer: Yes, that's fine.

Kevin: So, from a personal perspective I think [1.2.1] **what motivates me about being involved in product design is that it's, it is contributing to progress, hopefully and making the world a better place in very small ways, umm, it's also, [1.2.2] what I really like about it is that it's at the nexus of a few different spheres, many people these days work in highly specialised spheres, we sit at the nexus of society, of business and of technology, so we're one of the few generalists around these days and we're as a result [1.2.3] good designers have to be able to balance off all those different... an understanding of people, sociologically, anthropologically, emotionally even spiritually. We need to understand how a business can make money we need to know about market segments and production costs, distribution, brand and all that sort of stuff and also understand the opportunities of technology and also the constraints of technology. So I find that, [1.2.4] these are three areas that fascinate me and being able to bounce around those spheres and come to an optimum solution I find very satisfying. So that is probably, I also think that [1.2.5] on a more subjective level I like being creative and I like working with creative people. So there is probably three elements on the personal front. I think what is kind of**

interesting on the economic front; it's become really important to, [1.2.6] **as most product categories mature they can no longer compete on price and functionality so companies have to differentiate through more subjective softer factors, like how easy is it to use, like how attractive it is to the target market and that's why companies turn to design more and more for competitive advantage.**

And then from a political point of view I think it's particularly interesting, particularly in the UK, but also other countries, in a globalised world where manufacturing jobs are increasingly moving to China, there is more of a sense, you know, we're now living in a knowledge/creative economy and it's become a politically strategic issue about, 'Right we need to leverage our knowledge and creative skills'. And you know Britain used to be the workshop of the world, it now wants to be the design studio of the world and it's got a lot of competitors, you know, Thailand, Singapore, all sorts of emerging, what used to be called emerging economies, are now taking the same route because they're feeling the heat from China. And also at the same time is that 'creatives' have got a lot of political currency these days and social currency.

When I grew up being creative was a euphorism for not being very good at anything else, you know 'He's not very good at that but he is very creative'. I was discouraged from doing design at school because I was good at other things, you know if you're good at Maths and Physics what are you doing design for. Now it's a mass aspiration, you know loads and loads of kids want to be designers, some amazing statistics about how many school leavers want to go into the design profession, 1 in 5 or something, if you take the creative industry, wired media and all that sort of stuff and in business everyone wants to do creative workshops, marketing people, engineers, everyone wants to sit around on beanbags and feel creative, it's part of that self-actualisation. So they feel that they're getting more job satisfaction because they feel more creative. So I think that it's quite interesting to look at it on those different levels.

Time: 06 minutes 52 seconds

Interviewer: And just one more perspective on that, you mentioned before society as a whole and possibly from that point of view what is design, how does design help society as a whole?

Kevin: How does design help society... Let's have a think about that... [1.2.7] **I think it enriches material culture, so if we're talking about products, the objects around us, hopefully, are more pleasing and meaningful and more pleasurable to interact with** and yeah I think I will go for that one.

Time: 8.04

Interviewer: Do you feel that in your years in the industry that the direction that design is taking or the way that design is perceived has changed?

Kevin: Perceived by who?

Interviewer: By the people who, by the professional designers within the industry.

Kevin: When I first began, you know because I was at Newcastle I went out into industry fairly early and actually in my second year placement I actually took a year off and, so I did an 18 month placement, so I had experience of working in a design consultancy in the 80's and things were a lot more straight down the line product design. It was about styling, it was about not being integrated into early decision making, decisions being made about market, decisions being made about the technology, probably the engineering had been done and you take it to the scruffy people to style it up and designers constantly used to talk about putting lipstick on a gorilla and it was not especially sophisticated. It was people who had been to art-college and saw themselves as artists with technical knowledge and there wasn't too much thinking about the target market, there wasn't too much thinking about interaction, there wasn't much thinking about brands, so it was a fairly technical/aesthetic activity. Probably the next thing to happen in the early nineties was interaction and starting to see that, starting to think about that a bit more. Then in the late nineties it was more talk about brands, so you're starting to express the brands though, you know how it looks and how it felt and how you interacted with it and generally people being a bit more business savvy. And then I think in the early naughties there is more interest in the kind of the research side of things so, ethnography, understanding more about the users and designing for that and just generally trying to be more strategic so getting involved early on, you know the pre-design discussions trying to get more involved in those with the marketing and the

engineers and designers using their skills. Because designers have always had lots and lots of skills that they haven't been particularly aware of themselves like being able to run workshops, being able to capture ideas quickly, being able to synthesis marketing, technical, aesthetic information and all that sort of stuff so I think design... we're starting to realise that they had, you know skills outside of auto-cad that were useful. I think now something we're moving towards is, and something that Plan is very much focused around is, the whole product experience. So that is really understanding the consumer interaction with the product right from the first time I see it, they notice it, it's distinct from the competition or whatever, or that it has been thought about how it communicates through advertising. It resonates with them as the target market, it's, they probably start thinking about brand, oh yeah that's different for them or yeah I can see how that fits in with their previous products and what have you. Then getting a little bit closer and spotting the details, touching, feeling, picking up, then consciously trying to understand it, so that they, if they like it, that's all the sort of pre-cognitive stuff that happens very very quickly. Then there's more conscious analysis about the build quality, that, 'Good I like that' and how do I use this 'Oh yes that makes sense' or whatever, and then once you get it home it's the post-sales process that's, what's the packing, what's the unwrapping of it like and when you really want to understand how to use it, what the interaction like, what's the documentation like and also finally how does it fit into, how does it slot into your living room, how does it slot into your pocket, how does it slot into what goes into your handbag and the rituals of your life and all that sort of stuff and hope-fully how are you going to talk about it to your friends and spread it by word of mouth, so you know to do that you have to be involved very early on and you need to talk about things on the, sort of, grand concept level, that you're coming up with a concept that can drive not only the product but also the interaction, also the marketing, also the packaging. So that's the way we, that's a skewed view from our perspective, I guess that's one way of looking at it.

Interview Template Question Four

Time: 14 minutes 10 seconds

Interviewer: I am going to ask you a very open ended question, what do you think is important... within your designing?

Kevin: What do I think is important... I am not quite sure could you expand on that.

Interviewer: I guess on a project-by-project basis, but also day-by-day, what are the aspects of your work and your working relationships that you put great value on or that you think are important?

Kevin: Because I can view that from two different perspectives that are slightly different, one's, what do I really enjoy doing and what do I think is really valuable and then there's also what do I think is important from the clients perspective. Which were you thinking of?

Interviewer: It was deliberately left open to see which you would follow I would love it if you could answer both. A lot of it will go into one of your previous questions about what motivates you I assume.

Kevin: I mean there is a wide crossover so, probably, let's take it from the commercial perspective first, you know, where do I think the value is? I think why clients choose us is that we're senior and experienced and big picture so [1.4.1] **we can engage with their business situation, we take on board what their business situation is, what their market situation is, what their strategy is, we try, we often get involved in what's the business case for this project,** you know or what are the things we are going to have to, what are the hurdles we're going to get over to get investment to make this actually happen and we can engage with that and we can help facilitate the clarification of that and with, I just think [1.4.2] **we're very good at what, I used to call it clarity at the front end,** when I was at Seymour Powell, but really just framing what the issues are, really framing what the opportunities are and really being able to take things through in a really coherent intelligent way and then interface with the design process very well because I used to be a designer. And [1.4.3] **I just really enjoy the, tackling the really high level complex problems that the client doesn't even understand really and going back and really presenting back the problem to them in a far more precise manner and saying right these are the alternatives and this is the route we're taking and then taking them with us.** And just [1.4.4] **being able to add a lot more consciousness and rigour to that early phase, I think that's probably most important from the**

clients' perspective. From my perspective, as much as I like, [1.4.5] I love the craft side of design you know finessing a detail and all the rest of it, if I did that all the time I would get bored of it. I like the engagement with technology, with marketing, with the business case, I guess I am motivated by new and complex problems and interfacing across disciplines I think that's what's important to me and being involved in, not cranking the handle and solving similar problems that were done before really engaging with new and complex ones and trying to solve it.

Interview Template Question Five

Time: 18 minutes 42 seconds

Nick: How do you personally judge the quality of a design or a design project, how after a project has been completed do you personally judge its quality?

Kevin: On a number of different levels I guess. On the instinctive, [1.5.1] **my instinctive assessment of the quality of the final end product, so forget everything else, is it a great product, not from my point of view but from the point of view of the market segment it's aimed at, that's a very instinctive level then it's more about [1.5.2] to what extent have we solved the clients' problem**, you know where are the holes, have we really taken things forward and hit the nail on the head or have we veered off track a little bit, or have we gone off down a blind alley, or something. And then more internally than that [1.5.3] **to what extent have we pushed our own understanding and processes forward, we've now got a more conscious way of segmenting this market, we've got a better way of describing how something evolves over time, or whatever. Yeah, [1.5.4] instinctive product reaction, how well resolved is it, how well does it stand up on its own right if you don't know anything about the project, have we done a good job for the client and how have we progressed our own understanding of the processes.**

Time: 20.50

Nick: Are they the same criteria that you would use, in a project that wasn't one of your own, to judge what you believe is good design, do you use the same sort of criteria or do you have a different definition of what good design is?

Kevin: I think it would be purely the first one, because I wouldn't know enough about, it's very unlikely that I would know much about the detail of the project and I certainly wouldn't be bothered about processes. So it would be purely the integrity of the product, but I would try and guess who it's aimed at, I wouldn't purely do it, do I like that or not for me, do I think that is good from a who is it aimed at point of view.

Interview Template Question Seven

Time: 21 minutes 40 seconds

Interviewer: Would you be able to describe or define what you think makes a good a designer?

Kevin: I think [1.7.1] **someone who's inquisitive, wants to make the world a better place, interested in those three spheres people, technology and business, someone who is goal-orientated, lots of people are very creative but they can't make decisions and they're just scatter-gun, you know. So someone who's, obviously it goes without saying that they're creative and can generate a lot of ideas, but they can, relatively quickly, filter those ideas and narrow down to a few directions. Someone whose got all the basic skills, there is lots of important skills to pick up from sketching to CAD to how to put together a good presentation so at the skills level that's very important. And I think, and then [1.7.2] the stuff that makes someone a really great designer is that black magic craftsmanship of finessing the detail, of picking a colour that just no one would expect but it just works, or coming up with a little bit of magic that really adds a bit of wow factor to it, that's the really hard stuff.**

And I think commercially as well I think [1.7.3] **they've got to be able to communicate, they've got to be able to present, not only technically well, you know, being able to put together a step-by-step presentation, but they've really got to be able to sell the real value of what they've done in a concise impact-full way.**

Interview Template Question Eight

Time 24 minutes 14 seconds

Interviewer: How do you develop your own design practice? Is there anything that you purposefully do to help you develop the way that you practice design?

Kevin: To start with [1.8.1] **I am very self-critical, I am always looking for ways to do things better**, so it's not self critical because I like beating myself-up. I am aware that there is, [1.8.2] **in this kind of strategic end of design there's all sorts of little, sorts of rationale glitches where you almost have to make a little bit of a leap of faith, I would love to be more convincing at that stage in the process.** So [1.8.3] **I do have a general big picture goal, I am aware that I could be a lot better, a lot more joined-up. Because ultimately I want to bring the same rigour that MacKennzie bring to management I want to bring to design, so I have that big long-term aim if you like.** So there is the will, how I actually do it formally I guess is that we do whenever possible we do de-briefs.

And I am also documenting, you know, best practice, how we should do things ideally. [1.8.4] **In the cut and thrust of solving complex problems you're drawing on your past experience but not particularly consciously, not in a particularly rigorous way you're remembering stuff that comes to you. But if you can distil, by theorizing a bit, by coming up with some general observations that you think will work outside of that project and documenting them, so documenting our process and best practice processes, and then ideally doing a debrief and feeding the conclusion of how we can do things better back into those best practices processes** and that's something, that's a long term project that not something most designers are particularly prone towards, they want to get on with the next project but I'm, I think that's, because I am trying to grow the company and because there are no formal training in design strategy and there is no formal agreement about what design strategy is, so I have developed my own way of doing things and to a certain extent there's what is called in teaching as sitting next to Nelly, where people learn by just sitting next to me and working with me and I, [1.8.5] **I want to try to and make that, my assumptions more explicit in the ways I am doing things more explicit so people can understand why we are doing stuff and it will be easier to bring people on and bring them up to speed quicker, so that's the motivation from the business point of view.**

Time: 27 minutes 56 seconds

Interviewer: In your previous roles as a design manager or as a designer, did you have different ideas about how you should develop your practice or do you have any observations about other designers and how they try to develop their practice?

Kevin: I think the general approach is that [1.8.6] **there is a real thirst for new experiences and working with new types of products, working with new types of people, people you respect.** [1.8.7] **I think the general approach is that people want to work on product categories that excite them, whether that be, cars, mobile phones, or furniture or whatever. They want to work for clients who are smart, ask the right questions, open-minded, they want to work with, they want to get exposure to people they really respect. So it's very much learnt by doing and working with the best.** I think that's the, and informally learning from those experiences. So in the future I know I am going to get in the model shop a lot quicker on those types of products. It's a kind of internal informal learning process. And I think there's a lot of, the particularly motivated young designers do a lot of reading of the press, reading magazines and just buying the stories that designers tell and often designers tell stories that aren't particularly accurate.

Interviewer: I think we all do that, and they have a better imagination than some.

Kevin: It's a lot more to do with selling themselves and the project than a realistic representation of what happened and how it was done.

Interviewer: I think that is quite an interesting observation, do you think that's a trait of designers or do you think that's a trait of people who like to tell stories?

Kevin: I think it's just business savvy. It's just, if you've got a story that people will remember, that sounds interesting, has a twist to it or has got a really interesting approach to it or just really romantic, you know, you're really inspired by, or whatever even if it didn't happen like that at all. I mean Phillip Stark was the master of that, having all these really interesting stories, everyone almost accepted that they were made up, but everyone still bought them anyway.

Interviewer: I guess that's one of the reasons why we buy magazines, or why magazines are bought, it's our thirst for stories like that, it's our intrigue.

Time: 31 minutes 34 seconds

Interviewer: You might have already answered parts of the next few questions. I was wondering if you could describe the role of the designer in the process of a design project from the different perspectives that you have had over the years?

So in your current role as a design strategist, what do you feel is your role with in the process of design? As a design manager what was your role in the design process and as a designer what was your role in the design process?

Kevin: You want me to describe my role as a design manager as apposed to a design strategist?

Interviewer: If you could take design strategist, then design manager, then designer and describe what you felt your role was in the design process at that time.

Kevin: Ok, I think in terms design strategist in the design process it's about defining the problem precisely, framing the problem, laying out a spectrum of possible approaches, developing a rationale for narrowing down on which approaches you'll focus on, striking up any opportunities that exist before the design begins and also doing some kind of inspiration work in terms of relevant reference points and what have you and then being involved in the brainstorming and concept generation and then giving feedback during the design process about how different work is matching the strategy. I will often get involved in filtering down concepts because we will have developed some sort of criteria some assumptions that we're going to say well that falls outside what we're saying really and then I also get involved at the end in the presentation about how to tell the story all the way through so that it's a seamless story. So typically when Mark is running around getting the model done or photographing a model I'm putting the finishing touches to the presentation.

Interviewer: And how would you describe your role when you were a design manager in the design process, in what ways was that different?

Kevin: That was a lot different, that was a lot more, well there's certain elements, clarifying the brief, defining what the deliverables were going to be with whoever delivered the brief, so just managing expectations about what, 'That money you're only going to get two and it's only going to be at sketch phase' or whatever. So thinking through inputs, outputs, resources. And then briefing, maybe doing, doing some very quick framing of the issue and briefing designers, getting involved in a bit of brainstorming but it's basically just reviewing progress after that and keeping people on track, you know encouraging, motivating and then often, yeah, doing the presentation again, you know just giving them guidance in how to present their ideas and then I would be pulling the presentation together and giving the presentation. So there are, there were quite a few similarities really.

Interviewer: And could you give a brief description of your role as a designer in the design process?

Kevin: What my role was? I guess it was to ensure I understood the brief, ensure that the brief was, I mean I always used to challenge the brief probably more than others, this is a bit vague or what did you mean by that, or whatever. It was to quickly get up to speed with the subject, not to be designing naively I didn't want to reinvent the wheel or do something that was inappropriate for the target market. Very quickly orientate myself, come up with lots of ideas, pre-filtering be able to present those ideas to my manager in a presentable form so that they could get over the idea and then all the stuff you know about I think, rather than go through the whole design process.

Interview Template Question Nine and Ten

Time: 37.28

Nick: What are the difficulties that a designer faces, what are the design situations that put you in greatest turmoil or conflict?

Kevin: [1.9/10.1] **The client changing its mind! That's the number one definitely, that they, they ask for one thing then change their mind or you, it's something you might have stopped and they originally said 'No it's got to be this way', then**

they change their mind and that can happen in all sorts of different respects but it's incredibly frustrating and you can waste an awful lot of time and effort because of that and that's why it's so important to try to do this clarification upfront because if you can do that upfront it can save you an awful lot of wasted time downstream when they say 'Oh, I didn't mean that' when you show them loads and loads of work. So that's one. And [1.9/10.2] **I guess it's frustrating, when internally, when there's a miss-communication within the team about what's actually required, or and also for me, this is a bit of a personal bug bear is [1.9/10.3] when people just want to slip into a pattern that they're familiar with, 'We did this with the last project let's do that', rather than go, 'Well what's actually the right thing to do on this project', but that's a minor thing. By far [1.9/10.4] the worst thing is client's changing, changing the rules, changing their minds completely, just being chaotic.**

Interview Template Question Eleven

Time: 39 minutes 57 seconds

Interviewer: A bit of a strange question perhaps but, what role do you feel your emotions play when designing? Do they have any influence on how you go about doing things?

Kevin: [1.11.1] **I think that gut reaction, gut feel is incredibly important to a, to good designers and I always understand that as, that gut reaction that is sub-conscious is actually distilled wisdom, so it's not just a random emotional reaction it's a sub-conscious distillation of your opinions, experience, knowledge and you can't necessarily unpick. Have you read the book Blink?**

Interviewer: I have not read that one, no.

Kevin: Did I send you a copy of Planview?

Interviewer: No

Kevin: I will email it to you, but I reviewed the book blink for blueprint and Planview, so you'll find that interesting, but it's basically talking about the first two

seconds of seeing something whether it's a person, a product, an advert what happens in those first two seconds and how important those first two seconds are, I really recommend you read that one, it's an excellent book.

Interviewer: Excellent, excellent.

Kevin: It's called Blink, the power of, I can't remember what it's called now but it's quite a good one, I really really do recommend that one... I've lost me thread now, what was I talking about.

Interviewer: Distilled wisdom.

Kevin: Distilled wisdom, yeah, [1.11.2] **I think that emotions in that respect are very important but I don't want to overly mystify those emotions, those allsorts, it's kind of tacit knowledge stuff that you have known and then forgotten but that's still there. And [1.11.3] to a certain extent that is what clients are buying, they're buying expert instinct. So that is kind of [1.11.4] at the decision making level, 'Is this the right thing to do, umm', you know, and you can first of all you feel the emotion and then you can probably verbalise it, but that's kind of post-justifying the instinct and sometimes you change your opinion and I am always a bit worried about that because you're always trying to bring a level of, if it doesn't feel right then it's worth digging around and double checking but normally you trust it but try to understand it a little bit more, so I think that's incredible important. [1.11.5] I think that, how just you're feeling generally, whether it's a bloody horrible day or you've just had an argument with your girlfriend or whatever, that can effect obviously how you're working, and I think that some people are incredible affected by that. I am a bit more like this [hand held steady] but some people can be really up and down so that's obviously important. And I am sure there are some other aspects of the emotional bit but I can't think of them right now.**

Interview Template Question Twelve

Time: 44 minutes 20 seconds

Interviewer: That leads quite nicely to the next question, would you be able to describe your general condition when you feel your working really well?

Kevin: That's a good question. I think it's, umm, ha-ha, there's a number of reasons why I tensed a bit. Hopefully, [1.12.1] **a few of weeks before the end of the project where I really feel that I have got a rich, clear understanding of all the issues and we've got some good ideas**, so I really feel that, [1.12.2] **often the first month or so you're kind of stabbing away and it's all a bit hazy and you're a bit worried you're going in the wrong direction, there's some really niggley bits of things that we just can't get to the bottom of and all that sort of stuff which, there's always that uncertainty at the start of a project, 'Are we going to be able to pull it out of the bag this time', you know, so hopefully, after the phase where we've gone out and we think we understand and we believe that we've got a good direction and then it's like pulling all the treads together but that's what, that's when [1.12.3] I feel that it's that interaction between understanding and intuition where you've got a concept, you're refining it, you're bringing in other elements that enrich it and that best happens when there's a small group of you, between 3 and 6, you're all cooking on gas, you're all coming up with ideas, everyone understands, everyone's motivated. [1.12.4] I think being excited about the project is important** because you can go through all these things but if the end product is like, a shampoo bottle, it depends that turns some people on but not me. So [1.12.5] **I think caring about the end product. [1.12.6] It's after you've got the idea but you're really, really sort of tying it down and refining it and pulling in all of the, adding layer upon layer of richness to it through the understandings you have of all the different constrains that 'Hey we can resolve this brilliantly by', you know, where it all starts to come together, it's almost that explosion in reverse where, (ha).**

Interviewer: and you can feel it can't you, you know when it feels right and when something is missing.

Kevin: Yeah.

Interview Template Question Thirteen

Time: 47 minutes 31 seconds

Interviewer: Obviously there are a number of different activities that you have to go through in your role, would you be able to, if you're able to, describe what you think your mind is like when undertaking those activities well?

Kevin: Are you talking about this point in the project which we have just been talking about or...

Interviewer: A number of points through out the project I would probably suggest.

Kevin: Ok, umm, [1.13.1] **well if we start with taking the brief, you know, really sort of, in active listening mode really, really trying to understand what the client problem is, and the clients don't tend, clients differ enormously in their ability to explain the problem and the context of that problem, so sometimes people lay it all out on a plate and it's all very simple, that's quite rare, so it's active listening, trying to put my, trying to empathise, put myself in their shoes and really understand why, what the problem is and why they're asking us to do something in a certain way, and if things don't line up I'll be asking questions asking questions until I understand the context, understand the problem, understand why you're asking us to do it that way, but fundamentally it's getting to the heart of the problem, active listening I guess, [1.13.2] so active listening and empathy I guess would be one way of describing where my mind was at.**

Then it's kind of, umm, [1.13.3] **writing a proposal, then I go into being obsessed about structure, breaking down the problems getting things in the right order, working out what we need to find out, what's the best way, a cost/time effective way of doing it is. [1.13.4] So it's all very super rational, breaking things down, but also having a, having a, [1.13.5] probably one of the first things I do either individually or as a quick chat is, having a gut check, you know 'What do we think is the solution here', it's almost like a quick hypothesis and that's important as well. [1.13.6] So there's a certain level of quick gut check and then right let's break things down in a very, sort of, rational way.**

Then [1.13.7] assuming we get the project there's quite a frenzied and pragmatic problem solving phase of, where you're actually trying to set things up, and oh, we thought we could use that freelancer and now we've got to err, how are we going to fit that all in that time and you've got to design a project and you go, 'We've been squeezed by three weeks we were going to, but we'll have to do that in parallel' and there's just a complex kind of resource, people and time resource jigsaw puzzle to put together, which you had sketched out in your proposal. So that is normally frenzied and highly non-ideal and you, you're having to make very quick decisions. Then [1.13.8] typically we would go into some sort of understanding, research and understanding phase whatever form that takes and that will be quite rigorous and laborious, where you're just in absorb and analyse mode.

[1.13.9] Then there's a period of just playing around with some of the results and a crunch time of going right 'What does it all mean and what are we going to do' which is a real crunch time which you always get a knot in your stomach and 'God were going to have to come down and stick a flag in the sand somewhere' and going back to gut reactions again testing things out, doing quick a dirty checks about 'Well if we do that then what does that mean, would it, ah', checking things back, and then, [1.13.10] then it's coming up with ideas, filtering, you know, which is quite a hot and cold thing, up and down thing, where you'll feel passionate about some and you'll hate others, you'll be indifferent about others, there'll be arguments, people will disagree, it's a bit of an uncomfortable phase [1.13.11] then it'll be getting to the phase when you've narrowed down to an idea and then you're just resolving it you're sorting out all of the issues you're aligning it with other parts of the project.

And then you get, I guess [1.13.12] the final one you get into the story telling thing, when you go right how are we going to communicate the most important parts of this project, both in terms of how we reached the decisions we did, but also why it is such a great product. So, I quite enjoy that, it's kind-a like getting into a film story-board where you have to do that before then and that's really important let's slow down at this point, let's just set the context, step back and then zoom in. Then [1.13.13] the last thing is that you go in to salesman mode,

get yourself pumped-up, get the energy levels up and you really believe in what you've done and go for it in terms of telling the client about it.

Time: 54 minutes 56 seconds

Interviewer: That's great. I have just got two more questions left if that's ok, what role do you believe that insight plays in design and how do you feel insight is developed or how are the conditions created that help manifest insight?

Kevin: Well insight, I think the first thing to say is that insight can come from allsorts of different directions, they can come from just a sub-conscious gut feeling, they can come from hours and hours of consumer research, they can come from just coming from a different category, you've seen something in a car interior and applying it to a TV or something and that's what designers do a lot, it's not particularly creative but it's seeing the relevance of something and just importing it across the species barrier if you like. It can come from a new technology, it can come from a new trend, it can come from understanding the problem in a different way to other people, it can come from re-conceptualising the market or the market segment in a different way. So I think it's, the importance is being open to all of those and not just thinking, 'Oh I'm just going to look at trends or I'm just going to look at the consumer or whatever', just accepting that it can come from allsorts of, it can come from all over the place.

And then I think the word insight is banded around a lot and I think it's important it passes two tests, that it's new and that it's relevant to the project because lots of things that people call insight is just benign, they're actually widely know if you had bothered to talk to experts or read a bit, 'Actually that's not a big insight pal'. And the other thing is that you can have something that is new and interesting but actually it's not relevant and sometimes you don't know that necessarily at the start you've got to try it out, but at some point you've got to realise that actually, new and interesting but we can't see away of using it, so it's a none relevant insight.

And I also think it's important to craft the insight, really hone it, because sometimes it can be thought of quite vaguely and it's worth drilling down and being as precise as possible about what do we actually think is happening and what do we believe is new

and different and relevant rather than, people want emotional products, well what does that mean, and that's not new and what does it mean anyway.

Interview Template Question Fourteen

Time: 58 minutes 01 second

Interviewer: And my final question, which you may or may not have an answer to, are there any moments over your career where you feel that your understanding or view of design or you and your role as a designer has changed fundamentally or considerably?

Kevin: Umm, I am sure there's been quite a few of those, I think a really important one for me came towards the end of my time at college was the understanding of designing for context rather than the abstract product shot. Up until that point I just wanted the product to look great on a graduated background and just realising that it's really important to think about the visual, spatial context and actually if you're designing a radiator or an air-conditioner then you should be thinking from an architects point of view and actually you don't want it to look fantastic and attention grabbing you actually want it to retreat into the environment and you should be thinking in terms of you want, well say in terms of interior, you want certain hero products and you want ones that just fit into the general scheme of things. If you walk into a room and every product is shouting for attention and that's a problem with a lot of designers' houses, they're interior is a nightmare because it's full of all these things shouting for attention.

Interviewer: Lots of visual noise.

Kevin: Yeah. So I think that was probably one of the real ah ha changing things. And then probably a lot of that I have done since is finding and making that understanding more sophisticated you know and enriching that context. And that's the one that springs to mind first. I think another one was the interaction side of things and there really was a point where you really did start to think of things in a more time based way and I loved that, that was really fascinating so that was another pivotal point.

And I think probably more recently it's just sewing up things, thinking in terms of the grand concept that is executed right the way from advertising right through to packaging and seeing, so stepping back and designing the whole experience not just the product. So I think those are probably three, which I kind of touched on in an early question, so they would be three pivotal moments for me.

End of the interview

1.2 – Mark Delaney

Interviewer: Nick Spencer

Interviewee: Mark Delaney

Date: Wednesday the 18th of January 2006

Location: Plan Design, London

Time: 1526hrs

Interview Template Question One

Time: 00 minutes 53 seconds

Interviewer: What do you feel design is?

Mark: I was just reading that question, it's interesting I do a thing on a Monday at the Design Museum where there is a debate about what isn't design. So I have been doing quite a bit of reading about what is design especially with the debate that happen last year with the Design Museum. And there's the, one definition of design, which is the Dyson'esc thing about [2.1.1] **solving problems and making things, manufacturing, and on the other side there is the more emotional sort of thing that is about making people feel better. I think the answer is somewhere in the middle and you range between those poles appropriately according to the project.** You know, if you're designing a brain scanner then, you know it's pretty important that it works well but you've got this other element of making it an appealing experience, as appealing as you can make a... If you're designing a mobile phone there's a level of functionality, but you can compromise those functionalities on certain markets. So design, [2.1.2] **what isn't design, it's a real, it's just a**

balancing act, balancing out lots of different things and trying to find the right balance between a lot of conflicting demands, I guess.

Interview Template Question Two

Time: 02 minutes 21 seconds

Interviewer: That's a good answer, so, and this might have a number of different levels or stakeholders, but what do you feel design is for? What are its benefits?

Mark: There was an interesting thing I read at the design council, that said, this guy at the design council said I'm not talking about design any more I don't mention that, I talk about value, creating that value and it depends on the audience where that value lies. So if you're talking to someone whose making widgets the value might lie in producing part counts and assemble costs, if you're talking about designing a chair for Cappolini it might be more about expression or it might be more about creating value through exclusivity or cutting edge design. So [2.2.3] **I think design is all about creating value but it depends where those values lie, that's very flexible.**

Time: 3.30

Interviewer: During your time in the industry do you feel that your understanding of what design is has changed, and if that is so, how did you understand design in the past and how do you understand it now and where do you think the future direction is?

Mark: It has definitely changed; I mean the job I trained for at Newcastle was all about product, about the artefact and making things, it was very, almost sculpturally based, you were doing things, functional sculpture. And I think at that time product design was all about speaking to the engineers in their own language, gaining credibility allowing people, and by, and through that credibility being able to make better products. Now design has sort of become core to most brands' marketing message, so you, especially the job I do working at Plan with Kevin, we spend a lot less time talking to the engineers and a lot more time talking to marketing managers and brand managers and to do that you need to speak a very different language, you still need to understand the engineering stuff because the stuff you propose needs to be made but you're talking more about brand values, and emotions, consumers,

desires, needs, whether they be articulated or unarticulated, so I have had to learn a completely different language away from draft and draft angles and textures and all that sort of stuff. I have come to learn about focus groups and target markets and all those sorts of, try to learn the language of business, and I think that is going to be an important thing for the next few years at least. I think in the future, a lot of, most manufacturing is in the East now, most things are going to be made out in the East so there's going to be a lot of designers going East and working in Asia, working in Eastern Europe and UK designers are going to be more talking, they are going to have to continue to deal with these, making these intangible promises of brand physical through product, so yes, that's what I think is going to happen.

Interview Template Question Three

Time: 6 minutes 03 seconds

Interviewer: My next set of questions are about what motivates you, why do you do design?

Mark: The facetious answer is that I can't do anything else, umm, it was an interesting thing on the foundation course, because when I started the foundation course I thought I was going to be a graphic designer and that was what I was going to do, then I started to, I had never done much design at school, I had never done any design at school, our school wasn't particularly good at that, I started working, making things in the workshop and one of the tutors said, *'Look when you go for your degree you've got to go for something that makes your heart go faster'* and at the time I was really getting into making things and I thought about doing craft first but, there wasn't something right, it was too self-indulgent, too artsy. And [2.3.1] **products seemed to balance a lot of the interests I'd had had, trying to solve problems, trying to make things, tying together sort of function, form,** a lot of things I had been doing almost without knowing, sort of things that had been banging around in my school-boy head and product design seem to tick a lot of boxes for me I really liked a lot of stuff I saw and got excited about it and that's what got me into product design, got me into Newcastle and it took me a while at Newcastle to really get my head around what I was trying to do, you know you spend, you go through a bit of a journey at Newcastle. You start off thinking you'll do one thing, then kicking against a few things trying to be a bit of a rebel and then, in my day, I don't know if it's still same

but you did have a bit of leeway, you were allowed to go off and completely mess up and go off down wrong alleys.

And still [2.3.2] **product design intrigues me, you know, it's still, I like this balance of creativity, my personality, my own creative ego, but actually solving things, trying to make things better** which is a bit of an old fashioned design. There's two definitions of design I work to, one's, oh what's his name, [2.3.3] **Vernon Panton, I think said that he designed because somewhere out there hidden just out of view is a better way of doing something and that's the sort of thing that gets you out of bed in the morning.** And then there's another great one from [2.3.4] **Charles and Ray Eames, when they were asked to define design and they said it's the best you can do by next Wednesday** and I quite like those two, and that sort of fits with where I think it, [2.3.5] **design doesn't allow you to get to self-indulgent because you always have clients you always have the struggle of trying to please the client, your own creative impulse, the struggle of trying to deal with manufacturing constraints and I like wrestling with all those things and trying to mould something that has worth** in other words.

Time: 09 minutes 25 seconds

Interviewer: So is that the motivation on a project-by-project basis, that's how it sounds to me anyway, what are the day-to-day motivations, what are the things that as a designer, what are the day-to-day tasks that excite you about design?

Mark: Umm, on a day-to-day general level I have really enjoyed a career as a product design in terms of, [2.3.6] **there is that moment when you're doing design where it's a bit of a struggle and then something clicks and it works, that's one of the reasons, that's a real buzz, you know you've got it and you just know how to do it and then, [2.3.7] even now after god knows how long that you're doing it whenever you get a project in there's still a little bit of panic at the start of it, 'Shit, I don't know what I am going to do, I don't know what the answer is', and that's, that fear is quite enjoyable. I think the moment I loose that fear is the time that it's like time to give up, so I think there's a certain amount of that. The other thing I quite enjoy especially when (?? 10.27) perhaps [2.3.8] **working with designers that are better than me, learning from them** and sort of [2.3.9] **creating****

teams with different skills, different people and sort of being able to form that in to something that's coherent and a bit more than the some of it's parts, that's quite exciting.

Interview Template Question Four

Time: 10 minutes 43 seconds

Interviewer: Within, or while designing what do you consider important, what are the important bits to you?

Mark: By design do you mean [2.4.1] the physical act of getting down to the sketch-pad and doing something; I'm trying to go through the mental process of questioning, I think a constant questioning is always needed, is this appropriate, is it right, [2.4.2] I see a lot of young, and old designers, who are very wary of pushing themselves too far out of their comfort zone, trying to challenge yourself is kind of important. [2.4.3] You know, drawing something; *'Is it right'*, really asking yourself some hard questions and if it doesn't pass those hard questions then being prepared to tear that idea up and then have another idea and [2.4.4] not being too precious about the work that you do I think that's key especially when you come out of college and you've done all your own work and some sort of, all my own stuff, and I think there's a learning curve that a lot of young designers find quite tough when they get into the real world, is that team thing, where it doesn't matter where it comes from, it's a good idea and being able to bow to the will of the group sort of thing and realise that I might really like this but it's not appropriate. And that's another interesting thing, on a day-to-day basis, [2.4.5] when you're dealing with a brand like Samsung and you sort of, *'Ok this is a really good idea, I've come up with this shape, this form, this phone, this idea, it's brilliant, it's great, actually it's not appropriate to Samsung one iota'*, and having the balls to put that down and say *'That's a really great idea but it's not appropriate, let's find some really appropriate ideas'*, I think that's a real challenge for a lot of designers, being able to admit that perhaps their idea isn't the best idea all the time.

Interview Template Question Five

Time: 12 minutes 49 seconds

Interviewer: How do you go about judging the quality of something you've designed or a design project that you have been involved in?

Mark: Well at Plan we try to combine research, a research process with the design process, we're not designers who are left to work almost in a vacuum and passed up our briefs but, like, '*Design us a phone*', are it's like '*What kind*', '*No just a phone, just pull it out your guts*', so that's, you'd judge that sort of, that is becoming, that sort of project comes down very much to personal taste, it's interesting to a certain extent. At Plan [2.5.1] **what we're trying to do is combine, we still rely on, on design, on a designers' gut feeling, their intuition, we spend a lot of time trying to inform and check that, that intuition with research** be that market research, be that customer research, you know and that's really useful and when you're working in that way you generally set-up criteria you have like a check list, we've done this in workshops where you brainstorm a hundred ideas and set of criteria, you know is it something, does it do this does it do that and if it fits those five criteria it goes through if it doesn't it goes out. [2.5.2] **That's really helpful finding criteria, certain sets of criteria that allows you to judge things and it almost stops it being my taste, your taste and starts it being '*Is it appropriate*'.** You know [2.5.3] **I think that question is always going through my head all the time, '*Is it appropriate? Is it appropriate to the user? Is it appropriate to the brand? Is it appropriate for the market, for the market they're trying to fit it, is it appropriate for what the brand is trying to achieve in the short term in the long term?*'** All those sorts of questions you're constantly battling those things, but they're not, [2.5.4] **every now and again you get something that comes from left-field which is absolutely right and that's like the snake horn of the design process and occasionally briefs come in and the moment you see the brief it's like (pop), I know, I know how I'm going to solve that and that's when it's good but occasionally you get one's like, '*I have no idea what we're going to do there*', and you just find a way through it.**

Time: 15 minutes 11 seconds

Interviewer: So how would you define your idea of good design? Either when judging stuff you've worked on yourself or other pieces?

Mark: Good design is a real difficult term, there's a lot of good design around, [2.5.5] **in terms of our projects I would judge it in terms of 'Is it appropriate?' is probably the main question I'm constantly asking, it's got to meet all those criteria, appropriateness criteria and one of those criteria is does it look good, that sort of thing, but a whole bunch of brand related, consumer related criteria that it needs to fit.** In terms of looking at other people's designs it does come down to personal tastes. Good, bad, good design tends to be design I like as in on the more minimal side and bad design tends to be over styled, over decorated stuff, but that doesn't mean that it's absolutely good or bad I don't think there are any definitions you can put on, some fairly outdated view, I don't think, there was this theory, modernist theory that you could codify design, you could measure it, you could say on a scale of one to ten this is good design or bad design, I just don't think you can do that.

Interview Template Question Seven

Time: 16 minutes 47 seconds

Interviewer: How could you describe a good designer then, or what makes, in your opinion, a good or appropriate designer?

Mark: A good designer is someone who can, [2.7.1] **I think often the role of the designer is to communicate, you know, you communicate between the demands of the consumer, the marketing department, the engineering department, the brand guardians and often these people are pushing you in completely different ways, you know, they're pulling you apart, they all want to achieve the same thing, they all want to achieve, but as a designer you're stuck in the middle of these people and you're the only one who can speak to the brand department, speak to the engineering department, speak to the consumer and understand all of these, the brand can speak to the consumer and they can have one point of view and the engineers, they're talking their own little language as you well know. [2.7.2] So a good designer has got to be, has got to have a sensitivity to all these demands and has got to be able to create solutions that allow all these things to get what they need to a certain, to a greater or lesser extent. So [2.7.3] you've got to be able to balance things, you've got to be able to trade off things, you've got to be able to negotiate and realise then you can push for something and when you can't push**

for something, when to push hard and when to pull back, how to make compromises I think, I mean [2.7.4] there's this idea that the best designers are uncompromising and it's their vision their vision that must go through and yeah to a certain extent that's true, there are some great designers who have that leeway, but in the main, most products most projects aren't run that way, it's a series of compromises so I think that's key to being a good designer.

Time: 18.51

Interviewer: That leads quite nicely to my next question, what do you feel are the attributes or characteristics that would make a person effective when undertaking a design process or design activities?

Mark: I think to be, [2.7.5] **I think when you're undertaking design processes you need to have a good degree of empathy for other people and other points of view**, I mean, I'm coming at this from a product point of view, if you're designing luxury furniture you can internalise this a lot more personal and it can be about your specific view of the world, but talk about mass produced products just because that's my bag. [2.7.6] **You need to be, have an empathy not just with the design premise but outside your realm of experience**, you know [2.7.7] **too often I see products designed by young mid to late twenty guys for other mid to late twenty guys and you sort of see things at the moment, there's whole markets out there just not being addressed at all not because there isn't any money in it, you sort of, take things like elderly people, they've got money coming out of their elderly ears but no-one is really addressing them with products that they want because they just don't think it's sexy or glamorous**. There's, I think over the next twenty years we're going to see a lot more focusing happening within product groups, so there's a lot of working going on at the moment into female phones, rather than phones being silver techie blocks there are phone coming out there that are definitely aimed at women ranging from really tacky, nasty plastic pink things to some fairly sophisticated things and that's something, I mean, there's a lot of work going on looking at phones aimed at elderly people, saying that these people aren't making any phone calls mainly because these phone are too difficult to use and you need like little needle figures but there's a market for those sorts of things and I think that there's going to be a lot more of that going now and [2.7.8] **designers need to get a lot**

better at stopping, designing less of the things that they get turned on about in T3 and a bit more of what people need.

Interview Template Question Eight

Time: 21 minute 15 seconds

Interviewer: That's a great answer. How do you go about developing or improving your design practice?

Mark: [2.8.1] **I think it's important as a product designer to constantly question what you're doing and why you are doing it, *'Is this the best way'*, you know [2.8.2] at Plan and at Samsung we did make a concerted effort to try to improve ourselves all the time to get better and know where our weaknesses were and try and improve those, so [2.8.3] I don't have any structure that I'm working to here, at the end of each project at Plan we'll look back and say *'Ok what went wrong, what didn't go so well, how can we fix that next time, what were the issues'*, you know what worked, if that worked why did it work and how can we build on that for the next project, what didn't work, ok that didn't work do we do it next time [2.8.4] I think constantly, a constant process of self assessment and being very critical with yourself, you know, not, even if the client is happy with it, you know, *'Hold on is that good enough'*, you don't tell the client that but, checking out always keeping an eye on the quality.**

Time: 22 minutes 36 seconds

Interviewer: Ok, would that be the quality of the final output you're checking or your decisions throughout the process the quality of your interactions or meeting with clients or would you try to take very aspect...

Mark: We try to reflect on, we try to look at the entire process, from the briefing to our understanding of the brief because often [2.8.5] **you find you take a briefing your understanding of it and you report that back to the client and they agree and then two weeks later, *'No that's not what I meant'*, there's always that sort, those sorts of issues and then there's your communications within the team, there's the process you went through to arrive at the designs and there's the critiques there's the way mid-term review those sort of things, you know, [2.8.6] **there's always ways****

you can improve and at times if we've had a good relationship with the client we will involve them in those critiques if they want and we've done that a couple of times and the clients have been like, *'You want us to critique, you don't just want us to send the cheque!'*, and then they can tell you what they want, and I think there's a, it shows a willingness to listen because designers are often very self obsessed and they hear the bits they want to hear and they don't hear the bits they don't want to hear and then, if the client doesn't like it then they're not clever enough to understand my creative genius!

Interviewer: I know some people like that.

Mark: So do I.

Time: 24.11

Interviewer: I bet. Would you be able to describe what you feel is your role as a designer within the design process? What part do you play?

Mark: I think it comes back to that, communications part, [2.8.7] **you're often sat between different groups and often you're the only person who can bring all these strands together and bring it into some sort of communicated report** and within Plan between myself and Kevin we have a wide range of ways we can communicate back to the client, it's often trying to find, you spend a lot of time trying to find simple ways to try to communicate quite complex issues and we've done loads of this sort of stuff and often you go back to the client and show them this stuff and they go *'Yeah that's it, that's the problem'*, you know, and often clients come to us and they say we know we've a problem but we're not quite sure what the problem is yet, here's all the stuff going on and tell us what the problem is, that's quite interesting and it's all this, [2.8.8] **I think the role of a designer is as a communicator right through the design process, then the product you design and release into the world is a communicator of the brand values, it should communicate about its function and all those proper design things you know, the nuts and bolts of design that we spent all that time worrying about at college.**

Time: 25 minutes 55 seconds

Interviewer: The next question I am going to ask, I have a feeling you have already answered, but I am going to ask it anyway. The aspect of being a communicator as the role of the designer in the design process, what I was wondering is, if that has change throughout your experience as a designer over the years that you've been doing it or if you have just been communicating with different people at different stages of the design process at different part of the project?

Mark: I think it changes through your career just as you get more senior you get in front of other people as a junior you're not going to be put in front of the CEO of X-Corp and you get to a certain level and then as you go through you tend to deal with people higher up the food chain. One of the things that you learn very quickly when you come out of college is that the things that people want to hear about in meetings are very different compared to the things your colleagues at college wanted to hear about. At college you'd be talking about the design and the craft and look at that, and that's R2 around there and that's really difficult to make on the model but look how I did it and you start talking about that in your first presentation and as a designer you just see a sea of blank faces. You need to work, you need to understand what the people in the room need to hear, want to hear about your product, your still designing the same thing but you need to frame it in a way that they can, that responds to them, so if it's the marketing department they don't want to hear about the draft angles and stuff they want to hear about how this will communicate their brand values to the consumer and how you can sell a shit load, the engineering department want to hear about how easy it is to make and the considerations and issues they're going to have to deal with so being able to frame your communication more to who you're speaking to.

Nick: I guess that relates to what you were saying before about value and being able to understand how it is created for other people and being able to frame the aspect of the project to allow that value to be communicated to the people you're speaking to.

Interview Template Question Nine and Ten

Time: 28 minutes 08 seconds

Interviewer: What do you feel are the difficulties that designers encounter? What are the design situations that put you in greatest turmoil?

Mark: I think, [2.9/10.1] **I think the worst situation to be in is when you're working for a client and you're doing a design, which you think is good, you're really pleased with it and you think it's bang on right and the client just goes, '*I don't like it*'. And then often what you'll find is that the client can't articulate to you why they don't like it in anyway that is useful. And that is the worst I think, that's the most stressful situation because then you're placed in a situation when you're like, '*Shit we've got to pull something else out the bag here and I don't quite know which way to go because I have gone the way I thought was right and now for what ever reason that's wrong and I am trying to balance like get the client to understand this but also that I'm open to his suggestions but he can't communicate to me what he wants, he's getting aggressive with me*', and you just have to, and at times that can get very stressful.**

Nick: I bet. How do you handle that, how do you about, where do you take it from there, how do you deal with the client and your own personal...

Mark: Now I mean I've learnt now that, after a long time of dealing with these sorts of things to try to create a presentation framework that removes as far as possible personal tastes from the equation, so working with Kevin and the research team before they even see the product you set it all up you set it up the market you give insight into the market, you show an understanding of their brand, you show an understanding of their market, you show an understanding of where the market's going, you show an understanding of the technology that's going to impact upon this product so that's kind of product and you lead them through step-by-step and try to get it to a situation where when the product finally comes out it's not about I like it's more about that's right and I've found if you can do that and speaking to them in business terms you know not talking about the beauty of the object, that's just yeah it looks fine talking like in terms of sales and manufacture and how this is going to improve on where they are and move them forwards. I have found if you talk in those terms you get a lot more respect, the product you pull out gets a lot more credibility because often what's happening is that people are put in positions where they're commissioning and responsible for design but they've got no design training no design background no design knowledge so you know why should they be able to

judge these things and especially when we're working for Asian firms and they say, they come to say '*Oh design a phone for twenty something youth in Europe*' and you're showing it to a forty five year old Korean man who has been to Europe twice to a trade show and he is meant to have an opinion and yeah he's got an opinion and it has worth but he's got to realise that the opinions of his target market are probably very different so you need to prove to him that you're the expert in that area and that gives your design concepts validity rather than it just being here's, oh yeah look at that that's cool isn't it, yeah what do you think and them going, I don't like it, and shit, what are we going to do now.

Interviewer: I guess framing that and making it clear that, again like you said with the communication, making it clear why it's appropriate and having the back-up that says it is, especially if you're communicating across a boundary where neither of you are necessarily the target market that you're talking about. And that must come down to the empathy...

Mark: Yeah it's getting back to the empathy and being able to get inside the head of a target market and trying to understand, not in a condescending, youth, so we'll put some skate board graphics on the outside, because that's probably what the client had in his mind and then you come in with a fairly sleek silver thing and he goes well that doesn't look like it, then you have to explain to them, no there are these reasons they don't want their phones to look like a toy they want a sleek grownup tool and there's, if you can come in, you need to prove, you need to create the environment where you are seen as the credible expert and you have opinions of worth. The best managers, they want to base their decisions on facts, and the best realise that they don't know everything and they just have to find the right people who can help them. So as a designer it's our job to be that person.

Interview Template Question Eleven

Time: 33 minutes 12 seconds

Interviewer: Ok, that's a good answer. What role do you feel, while designing, that your emotions play?

Mark: Umm. [2.11.1] I guess that the interesting thing about design is you have to be able to turn it on so it's not like an emotional thing so it's not like an artist who might get up in the morning and say I can't paint today, not in the mood, you need to be in at work half past nine everyday able to design something and obviously you have good days and bad days, but [2.11.2] it is a profession it's not an artistic vocation it's a profession so you need to be able to control your emotions you need to be able to channel them, you need to make them work, obviously there are certain projects where you get excited and carried away and you go off down wrong paths, but you need to be able to rein those in and pull them back and I think that's, that's something that [2.11.3] product design is sort of beginning to lack a little bit, it's becoming, in my opinion, too emotion driven there are a lot of people, a lot of designers, who in the magazines, that feel that student work is too much personal expression and emotion and not enough about problem solving and offering better solutions to do things and I am not saying that emotion and all that shouldn't be in product design I just feel it's going too far down the arty route occasionally, for my taste.

Time: 34 minutes 43 seconds

Interviewer: What you said just a second ago was quite interesting about being able to channel those energies, being able to rein them in sometimes if you're getting overly excited about something, is that how you would term their skilful use or could you describe what you consider using them skilfully as?

Mark: The emotions do you mean,

Interviewer: Yeah, or your own enthusiasms if you like.

Mark: I mean [2.11.4] design is quite an emotional act, you are, you do get quite passionate about it and as a designer you need to be quite passionate about solving things and I think that most designers want to do things well, they want to create a better world, they want to do better things, they want stuff to be better, for whatever reason, and I think that getting your emotions and [2.11.5] you can manipulate emotions I think to improve a project you know just by, I think often, one of the things that I do on projects is be briefed quite a long time before

you actually have to start doing any work, if I can have a couple of weeks before I start I find I start almost with a reservoir of ideas without even knowing it I don't like being told in the morning, ok sign this you've just got to start because it takes me a couple of days to get going and [2.11.6] I also think that boredom can be a useful emotion when you design you're pushing yourself so hard and you're bored and you go off for a cup of coffee and suddenly you'll turn a corner and you'll have found something, that helps. [2.11.7] I think frustration, all those, I think often designers can be, often I think designers are inspired by quite negative emotions, you know you're really frustrated with something and you want to design it better, or you're just frustrated with the way things are going and you need to solve it, you can not let it go until you solve it, you know, I think any creative act involves a bit of pain, you've got to give a bit. [2.11.8] Often I will find myself really frustrated, you'll find yourself not being able to sleep at night all of those really crappy things and people tend to think of designers as all sat around drawing boards having a whale of a time, it isn't like that all the time, at times it is, but when you do make that break through and you do get it right, it's like yes and it is a very pleasant feeling. So I think that often the design process can be a real emotional roll-a-coaster ride.

Interview Template Question Twelve

Time: 37 minutes 31 seconds

Interviewer: Which leads nicely to the next question, as I hoped it would. How would you describe your general condition then, when you feel your working really well?

Mark: Ermm, [2.12.1] I think there are certain times, you've heard this, critical mass, where lots of things come together and they create more than the sum of their parts. I think occasionally you get that in a way things just start to click, you've got like a good team around you and things are happening, things are, I think there was a couple of projects that I think we did at Samsung, Kev involved, where we just reached this critical mass where everything just sort of meshed together and I think that's a really positive experience, that's what sort of gets you up in the morning for the next year, yeah that was really useful and that's what got me together with Kev and started Plan. So [2.12.2] I think when it's going well you've got this, everyone's working hard, everyone is focused and driven and you've got

this almost, you've got this tunnel vision of what we've got to do, here's what we've got to achieve, here's when we've got to achieve it by, here's the things we've got to deal with coming in from left and right and you almost get into the zone you sort of, and that's a very positive thing and there's times when it's not going so well, when perhaps you've got people on the team who aren't pulling their weight, or just can't pull, or can't do it or can't pull it out of the and that's, that can be very frustrating and then you find you take on more than you can chew and things don't go so well and designers I think are often very personal about their work so you tend to blame yourself if things aren't going right and then everyone gets frustrated with everyone else and it's quite negative, you know that's the nature of creative work so.

Interview Template Question Thirteen

Time: 39 minutes 25 seconds

Interviewer: Throughout the design process or a typical design project there are a number of different activities that you have to undertake, would you be able to describe, or would you be able to give a description of your mind when you're undertaking those tasks and how a different mindset could be different for those tasks?

Mark: If we start with getting the brief, [2.13.1] if we start with the briefing, as I said, I like to get some time before the project actually starts just to let it mull around in my head and what I do in that time is sort of like creating a reservoir, you know, I sort of, things will be sparking off, I saw something about that I need to find that out, you sort of, you tend to have a sketch book on the go just little half assed doodles that aren't design, there something like that, something like that, I don't know what it is, but you build up a reservoir of ideas and things and often what I have found is that at that stage you need to get those ideas out and into something and often they're complete rubbish but often you just need to do them, just to stop thinking about them and stop, because if you haven't done it there's always this niggling things that, that was really good that idea. So once you've got past that stage at Plan we would hope to have set up some sort of [2.13.2] research process and we would be doing research whatever that might mean, be it consumer focused research or some fairly hardcore market research and then you

need to get yourself into this mindset where it's, ok forget all preconceptions, let's see what the market's got to offer and what I can make of this, so you've almost got to switch off your own personal point of view and be like open to what's suggestible, what's suggested, because often I have found that consumers have great solutions to stuff, but that they don't know about, it's just the way that they work, it's all just work rounds, ways that they've solved things that are not even, you look at it and think yeah I can work with that there's ideas there. So then [2.13.3] once we've got all of the research together, you go into this phase where you're trying to make sense of it, you're trying to understand what it means and then you get into quite an analytical point of view where you're trying to analyse all this stuff and the problem the risk there is sort of, errm, analysis paralysis we call it, where you've just got so much data that you don't know what to do with it and you're trying to make sense of it and then **that's when I find it really useful to go back to the design stuff you were doing at the start, all the thoughts you had and using this analysis to drive those ideas forward or just discount them and often a lot of sparks fly off at that point and things start to come out** and then you're into the hardcore creative design phase where you're creating ideas, sketching up ideas, reviewing them against the research data, discussing them with the researchers, because often one of the great things about working with Kevin and Richard is because they're research they have a very different point of view and you show them your design and show them *'Here this is what I am thinking'* and they go *'Well what about this, remember that this person said that, that would be really useful'*, and you get this synergy going between research and design and I think it's much more positive experience and then you sort of get, and once you get through all that and you've got through the presentations of the concept stage then it's into the hardcore knitty gritty of draft angles and trying to make it work, that's much more, that's, then you've got a square cube to work around you know where you've got to hit [2.13.4] **that's sort of a satisfying dotting-the-'i's and crossing-the-'t's sort of a phase, it's quite nice, that's always a enjoyable, I always find that quite an enjoyable phase of the design process, just getting the drawing done, getting the model made is always very exciting** and [2.13.5] then you go and make the presentation and then you need to get back into *'Ok what do the people in the room want to know about rather than me getting obsessed with the design process and the design break*

through that I have made here', they don't care, they want to know if it's going to sell and why, that's sort of a potted project.

Time: 44 minutes 15 seconds

Interviewer: No, that's great, and I have just got two more questions if that's ok. What role do you believe that insights play in design and how do you think an insight is developed or how are the conditions created that allow an insight to manifest?

Mark: I think it comes back to this thing designers tend, good designers have great intuition about how to do things and often we've found on research projects because of time pressures we will have designers working in the office and we'll come back and the designers have hit the nail on the head you know without seeing one iota of research, but sometimes they don't and they need to be pulled back in. [2.13.6] **Insights are formed through creative thought, data from one side you know just a whole range of inputs, it's being able to pick on a number of disparate inputs and make all the connections, join all those dots and somewhere, things seemingly that aren't related** like the fact that people don't have storage space in modern homes and a vacuum cleaner and you think how do those things go together, and you sort of think *'Well maybe we need to do something about storage all this stuff or maybe we need to do a vacuum cleaner'*, we did one of these at Samsung, we saw that people didn't have storage in city centre flats, so we said *'Ok let's do a vacuum cleaner that doesn't need to be stored'*, you know you might have come up with it just sketching but you probably wouldn't and that, the insight came between joining these two dots up. So it's just [2.13.7] **being able to pull things together and join dots and I think designers are good at that because they're good at multi-tasking a lot of different ideas a lot of different inputs, juggling them up into a bit of a soup and spitting them out into something that looks different.**

Interview Template Question Fourteen

Time: 46 minutes 28 seconds

Interviewer: Ok, and my last question, which might have an answer and it might not. Through out your time in the industry are there any key moments that stand out for you where your ideas about what design is or what your role is as a designer have changed?

Kevin: I think, no defining moments, I think that the last three years at Samsung were very formative at allowing me to understand what I wanted to achieve within design, and to understand that it wasn't, what was offered at Samsung wasn't what I wanted to achieve but there was definite worth there, trying, until then I had been very much of the mind set that we were designers and we should be setting the pace and people should be following what we say and then at Samsung working with the in-house team there and working with Kevin there was the realisation that we needed to engage with the broader picture to allow our designs to happen, rather than being sulky designers in the corner, so that's a major thing [2.14.1] **I've learnt that there's this perception that designers are individuals, you're ego driven and your ideas are the best and you've got to force those through and I don't think that those are particularly appropriate in the modern world and the best designs are going to happen when the egos can be put aside for a while. You do need a certain amount of ego to be a product designer because your job is to get on a say 'Right, this is right because I say so', but you need to be able to put that ego aside and so it's right for a whole different bunch of factors that aren't driven by my creative genius.**

Interviewer: I think that is wonderful, thank you Mark.

End of interview

1.3 – Les Stokes

Interviewer: Nick Spencer

Interviewee: Les Stokes

Date: Wednesday the 24th of February 2006

Location: London Associates, Berkhamsted

Time: 1029hrs

Interview Template Question One

Time: 00 minutes 19 seconds

Interviewer: My first question is, in your opinion what do you feel design is?

Les: What is design. I think it's easier, I always find it easier to talk about design if you compare it to something like art and it is pretty clear in my mind that [3.1.1] **the difference between art and design, which are both essentially creative processes are that design always has to have some context.** Yum, and certainly by [3.1.2] **my definition if you're talking about art you're talking about something, which can be completely selfish, completely self centred and doesn't necessarily need any sort of context where as design, good design always has to occur within a context so tends to be, you know tends to be a conscious, a conscious decision making process which is always in some form of context.** Now [3.1.3] **that's not to say it's a completely objective process because I don't believe for one minute it is, it's a mixture of objective logical thought processes and completely almost unconscious subjective sort of decision making** but I think the main difference is that it's always in some form of context, it's context related and that's what really differentiates, I think, art from design. And I guess as you go through, if you take the broader description of design and you start talking about craft design I guess you're somewhere between us on a scale of 0 to 10, designer-maker-crafts-man would tend to be somewhere in the middle of that. Yeah I mean [3.1.4] **it's also about problem solving but I think it's essentially the ability to work creatively within a specified context really.**

Interview Template Question Two

Time: 02 minutes 40 seconds

Interviewer: Ok that's great, what do you believe in the broadest sense design is for, why do we design?

Les: That's an extremely good question, why I design, I guess is I always have, which sounds like a bit of a cop-out but [3.2.1] **there was never any doubt in my mind I don't think from as far back as I remember that I actually wanted to design things and I can't pretend in those days it was anything to do with the greater good of man kind it was actually more of a feeling really** it's, I've had this discussion with other designers and I think there are some patterns that emerge, generally speaking, I mean if we're talking product design certainly. [3.2.2] **I mean product designers were always the people when they were young who were**

taking their toys apart, always wanted to know how things worked so I think a designer is always going to be a person with a really enquiring mind, is one of those people who's just not prepared to be told, well it works so don't worry about it. It's quite interesting because when my son was little and he was at junior school they all had to stand up one day and say what their fathers did for a living, he went to a little school in Hampstead, so as you can imagine you got '*My daddies a lawyer, my daddies a barrister, my daddies a publisher*' and then William stood up and he said '*My dad mends things*' because that was his concept of me and what I actually did so in his own mind he couldn't tell the difference between mending things and actually designing things. [3.2.3] **I suppose there is an element of that in it, there's an element of mending things and making them better**, but I guess, I guess it has, it has a lot to do with some fundamental attitudes, needs, wants that some individuals have and others don't have and I've always maintained that, that [3.2.4] **most good designers do sort of meet a stereotypical description and so I think it is actually something that comes from within rather than anything external and I don't honestly believe you can train somebody who didn't have those fundamental attitudes, feelings, emotions to be a designer.** I don't think it's that easy I think [3.2.5] **there is something about good designers that basically differentiates them and I've always maintained that, you know, in a sense that's one of the reasons that the design profession has never been particularly proactive, useful as a profession of people is because people come into it because of certain requirements for themselves that actually get met when they start being a designer but that's very different to some of the other professions I think where they're always driven, they're profession driven, I think design, designers are actually internally driven and on that basis, on business terms, are in danger of being their own worst enemies really.**

Interview Template Question Seven

Time: 06 minutes 35 seconds

Interviewer: Could you describe what some of those internal drivers are? What are the things that turn a person into a designer?

Les: Well it's, [3.7.1] **certainly there's a element of problem solving, there's no two ways about it, problem solving is part of the experience and not necessarily**

seeing problems as problems it's an ability to see a problem as a challenge rather than a problem as a problem, so I think good designers are the people who see opportunities in problems and that's a fundamental differentia. [3.7.2] Where some people would only go so far and go away crying with there tail between there legs I mean most good designers just, just carry on. I think there is certainly an element of that, there is, and out of that comes a requirement to be creative in some shape or form, I don't, I certainly wouldn't say that only designers are creative and I wouldn't say that only artists are creative because I actually think you can be quite creative in whatever you do. [3.7.3] **I think probably the difference between a designer and let's say a creative lawyer is that the designer requires something tangible to come out of the process as opposed to maybe a lawyer who doesn't actually need anything in their hand, so there's an element of touchy feely involved in it but,** [3.7.4] **I mean these are very interesting questions I don't think I have actually been asked that before, I don't think so.**

Time: 8.38

Nick: Along that vain, following that one, are there any other qualities that you feel a designer should have?

Les: I think if you're talking about designer in the context of a working designer, working in a design consultancy, [3.7.5] **energy, huge amounts of energy, drive, an ability to not get over tired...**

Nick: there seems to be a theme there!

Les: Ha-ha, yeah, a sense of humour I think is almost [essential], I'm not making this all sound positive am I, erm, anything else, I think I've probably covered it. [3.7.6] **There is a quality that good designers have that I, that you do see missing in other careers I think, it's probably best described as being able to think very, very broadly almost globally and then suddenly being able to snap out of that and think on a very, very detailed level and then being able to snap again to think broadly and I think that's, I wouldn't say it was unique to the design profession but I would certainly say it was unusual because something that, it's almost like, I don't know, like design Olympics really, because if you are a**

designer and you do it for many years you take that ability for granted and sometimes you can be surprised when you don't see that ability in other people and I think there's a lot of, I think one of the reasons why I'm struggling slightly to answer your question is the fact that you are what you are and you do tend to take a lot of this for granted. [3.7.7] I once heard it described, and I think a good description is, almost like looking down one end of a telescope and then you reverse it and reverse it back and then reverse it and you've got it, it is mental gymnastics it's that ability and that is the biggest differentia on a practical level, that's the biggest differentia between an ok designer and a really good designer that ability, because some people still, even designers tend to go down the detail route and find it difficult to see their way out of it, whereas you've got to be able to keep changing that view point.

Interview Template Question Two (cont.)

Time: 11.37

Nick: Who does design benefit?

Les: I think it, I think it benefits, well one thing I would always say is that I don't think design is a very good word at all I think it's a useless word to be honest. I know you have to use it otherwise how do you communicate but I tend nowadays not to use the word design very much I actually use other words that maybe describe the benefits of design rather than the design activity, I think what you need to say is what does good design benefit and there has to be, [3.2.6] there has to be a difference between just design for designs sake and good design. I mean good design should certainly, should certainly make, improve peoples' lives, I mean it should make them happy, it should make them have a warm feeling, it should bring joy to their life, it should bring emotional experiences. The trouble is that most people only ever understand bad design because, if they actually, if they're using, and again I am talking about products because I am a product designer, but if they use a product and it bites them they'll know all about it, but sometimes the best design is actually relatively quiet and works on some interesting emotional levels which aren't necessarily singing and dancing, screaming and shouting, it's actually quite quiet, almost gentle and peaceful and well appreciated but it's the bad design which people react more strongly to in a lot of situations.

Time: 13.45

Interviewer: Do you ever feel, or have you ever thought that good design can have any disadvantages or can anyone be disadvantaged by good design?

Les: I guess there is a danger of complacency, if you actually imagine the world just full of absolutely wonderful design there must be a, there must be a form of people adjusting to a norm and therefore not getting all of the joy they would have done. It's like just discussions of opposites really I mean, you know, you get into areas that [are] maybe a bit hard work but you know, can you actually understand love unless you know hate and I think it's a similar process with design. [3.2.7] **You are much more likely to appreciate good design in a world of bad design than you are within a world of good design because somebody's just shifted the, they've moved the base line up, I don't know, I mean can we imagine a world where everything was utterly brilliant design!! I mean, who would we complain to! How would we deal with the other bits of emotional requirement, which is complaining and grumbling? I don't know but that's the only down side I could actually see to be honest.**

Interview Template Question Three

Time: 15 minutes 33 seconds

Interviewer: That's great, that's lovely. What motivates you? What are you're motivations within design... or within the profession?

Les: I think if you're talking to me in particular, to be honest with you what motivates me is, [3.3.1] **I actually get bored quite easily and if for me coming to work everyday was the same and the same set of challenges everyday I would have given up years ago. I actually require new challenges, and you could argue that, sort of, design whether you like it or not, design certainly brings you that in every shape and form because as you would understand we never know from one day to the next what the day is going to bring, we never ever know when the telephone rings whether or not you need to be persuading someone that their products need re-designing, you never know if you're going to be dealing with an irate client so there's a challenging aspect. I think the thing that really does**

motivate me and I have been in the business, I think to be able to look back. I mean [3.3.2] when you're a young designer, I mean the thing that motivates you is, really is the first project you're working on so every single project you work on is precious, I mean too precious from my perspective, I mean you go through a period and when you've done your first twenty products and they're all in production and you then start to look possible for other challenges I mean sometimes that becomes an extension of your own ability, the best example there is when [3.3.3] I first started being an industrial designer I was an industrial designer, we worked for big companies, I did, I came up with ideas, I sold ideas essentially I then I spent probably the next year talking to draftsmen in a big drawing office and so that was a challenge and so the next move is you start to understand some of these principles of construction properly making things so you learn about, you learn about assembly, you learn about manufacturing and in the end you get very, very good at that and so that gets a bit boring and so, certainly as far as this company is concerned we started to get interested in, much more on the marketing level, things that relate to brand, so you have to learn about that. What we have been doing recently is moving even further forward in the design process, a lot of the work we do now is actually research-based work related to looking for product opportunities for companies, so it's like I suppose you're always re-inventing and I think that's really that's the only reason I'm still doing it, I could not have spent all that time just doing ideas, there's a limit. So again [3.3.4] it is the same attitude that leads you into being a designer that actually keeps you being a designer a constantly looking for new problems. [3.3.5] So the problems aren't the functional problems or visual problems of the product you're designing that then changed to almost the services you're providing, so I guess it's the same person just externalising those fundamental requirements in slightly different ways, I don't know where it ends, I don't know, I'm not sure exactly what happens, I don't know if it carries on forever or if one day you wake up and go, '*I'm bored*' and go and do something else. I think at the moment, [3.3.6] I think in a way, some aspects of the whole design world are probably as interesting as they have ever been, and I do look forward mildly optimistically to designers being treated as intelligent thinking people rather than just as blacksmiths.

Time: 20 minutes 35 seconds

Interviewer: Does that mean you've seen a change within the design profession or a change in attitude of people towards the profession?

Les: I think we're in that period of change at the moment.

Interviewer: And where do you see that going?

Les: I think where I would like to see it going is that you have CEO' of companies who are designers. We have been facilitators in a sense for too long and I think some of the attributes that you can bring to organisations are very powerful but because really no one has understood the process or the people that it has rarely happened but I think there is a change in the wind, I can, I detect it, that, certainly with some of the people we are talking to now we actually talk on a different level to where we were talking ten years ago. We're not just prepared necessarily to have a company come to use a say *'Well we've got this specification for a product we want designing'* we actually talk to them about why have they made these decisions and they actually treat you with more respect because you're not talking about design, you're not even talking about design process you're talking about solutions some of which is design some of which is strategy some of which is an understanding of accounting, so it's working on that bigger level. I think the only danger is that I have in the past met designers who think there are the reincarnation of Leonardo De Vinci, who can do all of that and run the world. I think for it to work you have to fully understand what you are doing otherwise it could end with some real sort of horror stories.

Interview Template Question Five

Time: 22 minutes 50 seconds

Interviewer: How do you judge the quality of a design project?

Les: When you've completed it or before you have started it?

Interviewer: When you have completed it, in retrospect.

Les: That's very interesting. We've actually, it's weird, I do actually, it tends to be, I mean the right answer should be, I suppose, the amount of money it brings to the company who commissioned you to do it. I think the actual answer works on a much more emotional level than that. We've had projects that we thoroughly enjoyed because we have enjoyed the people we've worked with and we have had successful products, projects that we haven't particularly enjoyed because we haven't liked the people we've worked with we've had, I don't think there's an answer there's not a single answer really. We have had very enjoyable projects where we have done an enormously good job and met every expectation of the client but the product has failed for reasons, which were outside of our control, but they have still been thoroughly enjoyable.

Interview Template Question Three (cont.)

Time: 24 minutes 17 seconds

Interviewer: So what is it that makes those projects enjoyable, what are the aspects of the project or the people you're working with or of the nature of the challenge?

Les: [3.3.7] **I think very often they are what you would describe as sort of ground breaking projects they are the projects where you are probably starting with a blank sheet of paper the projects where even the client doesn't really know what they want or projects where you are dealing with extraordinarily clever technology that has never been packaged before so you don't even, so there are no, unprecedented products, products that aren't evolutionary at all they're completely revolutionary so you're getting into really interesting areas about what people want, what people need as opposed to just another kettle or just another television and stuff like that. I suppose most the stuff I do most, if I look back most of the projects I have been most interested in are the ones where we've, we worked on the worlds first ever plastic moulded safe, high security safe and that was really interesting because you were, nobody had ever moulded a safe before and so you were actually saying well ok we're not making it from metal anymore so we're moulding them so what does that mean, we can do what we like, so what do we do, so you're into those sort of things or we're actually working on a project at the moment which is enormously interesting which is umm, which is actually using sensationally clever science developed by a university which will enable you to test for MSRA in**

ten minutes, so it doesn't exist, so you have to go to hospitals you have to talk to people you have to go back with propositions for what the product might be, you have to listen to what they say, you're dealing with, so I suppose what I am really saying is that the ones that really give you, [3.3.8] **the ones that give you the most pleasure are the ones that are most difficult that's probably the honest answer really, they're very, very difficult they're very challenging and if you get it wrong boy are you going to get it wrong, they're dangerous, I guess it's the dangerous ones that give you more satisfaction.** So it's not entirely to do with, it came out and it was absolutely beautiful, it works on a much more complex level than that. And it's sometimes nice when the client takes the trouble to send you a really nice email to say we are sensationally pleased, thank you. So I mean, yeah, there is an element of that sort of, but I think it's the more challenging ones, but that could be challenging on a technical level or any other level. But [3.3.9] **what you have done is create something that nobody has created before that's the essential, that's the essential criteria really and they're not all like that unfortunately** but we have our successes.

Interview Template Question Six

Time: 27 minutes 42 seconds

Interviewer: And how do you judge the quality of your personal involvement within a project? When you look back how do you judge, how do you know if you've done a good job or not?

Les: Me personally?

Interviewer: Yeah.

Les: Well I guess, it depends, I mean me personally my role I think you have to look at what your role is to actually answer that question and my role is not necessarily to sit down and come up with design ideas I mean my role is very much more managerial, direction taker, decision taker I mean I will let people work on a project for a while and then we'll sit down and I'll say looking at this, this is the route we're going to take so I guess ultimately my satisfaction is going to be in knowing that I have made the right decisions at the right time in the right order I don't actually, I just

about draw now a days, I mean it doesn't bother me, so and the other thing is, is as a consultancy you have to acknowledge, I would say that people have to acknowledge now a days that design is not, is not necessarily the personal business it used to be, so what you have to be able to do within the consultancy world is to allow people individually to feel good about what they are doing, to take pride in what they are doing, to take ownership in what they are doing and to understand that they are not the only person involved on a project so an ability to set up scenarios where a mechanical engineer and an industrial designer are working if you like under my control and they are working cooperatively and they are both achieving some satisfaction out of that in some sense that becomes an important part to me of whether the project was successful or not because it is almost the means to get to the end as opposed to the end itself that probably makes the difference between the things that give you a lot of satisfaction and things that don't and I think actually that's umm again it's a age thing isn't it as you get older you basically get your kicks in different ways but it's still basically challenges and it's just a question of what that particular challenge is in that particular year. Certainly one of the challenges we have had to face here is over the last few years is that we have now got model makers, mechanical engineers, industrial designers, industrial designers with different directions, we've got a communications designer, we've got a design strategist you get all those people to work together is actually not as easy as people would imagine I don't think and therefore becomes a challenge. So I think possibly, the truth is it's not based upon whether it was hugely profitable, it's not based upon, I mean some of the projects we've done have been design awards, you've had a company with ten percent of the world market and a year later they've got seventy percent of the world market so that has got to be part of your criteria but it's certainly not the only criteria, if to get there is a complete pain in the arse you know you're not going to have the same degree of satisfaction.

Interviewer: No, perhaps even a little resentment.

Interview Template Question Eight

Time: 31 minutes 29 seconds

Interviewer: Ok, how do you believe that people develop their design practice? What were the things that you have done to develop your practice as you have developed throughout your career?

Les: I think it's and I alluded to it earlier it's actually seeing ahead the potential for where design as practiced can change, where it can make a difference and being able to if you like to be thinking a couple of years in front of where you need to be while at the same time and I think this is this business of thinking globally and also thinking on a detailed level because on that same Monday you might have had to sort out some very detailed questions about why two injection mouldings didn't fit together and make decisions that you're going to adjust that one by 0.1 of a millimetre and it will be ok and at the same time you're thinking what is the future of design and I think it's the same example of the mental gymnastics. [3.8.1] **If you did nothing else but think of the future I mean I think that would be easier, or if you did nothing else but worry about tolerances on mouldings but when you're trying to do both that is an example of design thinking really or the innate ability of good designers can actually do that without you know, without getting to much of a headache**

Interview Template Question Nine

Time: 33.15

Nick: Well that leads on quite nicely to my next question, what are the difficulties that designers encounter, I mean obviously there is the flipping you've just been describing are there any other typical difficulties that designers encounter?

Les: I think the big problem we have nowadays is our clients, which has always been a problem, I mean it's a classic joke isn't it, clients who need them. It is I think, because basically the whole process is getting more complex, more sophisticated, it does now encompass, the parameters that you are juggling with are actually hugely more than they were twenty years ago. That one of the things you obviously have to try and do is to actually plan resources because you might have four people working on one project and you need to be actually having them doing the right activities at the right time and we are constantly being knock off our planning my clients who one week are saying we need everything finished in three weeks and a week later are saying sorry we're going to have to hold this project up a bit because we haven't

developed something and then you've got four designers. So I think the planning aspects are the most difficult things that I personally, I mean in my role have to deal with, I mean actually to the point where we don't over plan because if we over planned we would actually be creating more problems than under planning and we are able to operate like that purely because of our size, if we got much bigger that would become a real issue and I think that is one of the reasons why we are still quite fast footed, flexible and reactive and everything else that we actually need to be but I think generally speaking if you're talking about design consultancies one of the biggest problems you have is that, you know we have a reasonable high profile but we're a very small business, even the biggest design companies are very small businesses, ok the biggest are maybe moving into medium, but it's, we have all of the financial problems or resourcing issues that you would have with any, if we were selling green groceries. It's the same thing and I think that that is a problem because one of the, on one level we are projecting the image we want to project which is that we are some mega outfit who is all powerful.

Nick: I have seen that poster.

Les: But of course it's not like that really, we're a small business and therefore most of the problems design companies have are small business problems. We're not proactive enough because we have to be reactive because we have to deal with the problems that are happening on the projects that we are working on, on a day-to-day bases. So I might have a plan that I am going to spend three days doing something, which is all to do with future planning and very proactive but then I can't do it because I'm having to be reactive so, same thing really, it's the same model that, all the time isn't it really it's just having to be incredible flexible in terms of your thinking and some people just couldn't do it, just couldn't do it they'd just storm out and slam the door, *'I'm not having any of this'*. It's one of the things that we have to be very careful about when we are actually employing people, we have to try and work out if they actually fit into a category because we are going to be putting enormous pressures on them, we're going to be asking them to say, you need to get that finished by Wednesday because it's going off to the tool maker and then on Tuesday afternoon we'll say well actually we need you to be looking at this now because, you just have to change priorities. So they are also having to behave in the

same way [3.9.1] **we don't have one person here who has only got one project in there head, they've all got different projects and they're all at different stages and they've got to be able to immediately access that project in their mind and run with it, that's part of our criteria for the people who are actually going to enjoy working here and it's quite tough I think** really I don't think, a lot of people don't, I suppose anybody within any business within any profession have got difficult challenges but I wonder sometimes how many people have to react to how many different sort of brain levels your using at once.

Time: 38 minutes 16 seconds

Interviewer: So, when do you feel dissatisfaction? Are there any times or any typical things that cause you to feel dissatisfaction?

Les: Yeah, it's mainly people problems, it's mainly relationship things you know if you've got a client, I mean one of the things we, it's not so bad actually it's probably improved a bit really certainly about 4 or 5 years ago there was a time when I could have jacked the whole bloody thing in just because some of the clients we were dealing with. It was a time when places where making a lot of experienced people redundant because they were too expensive so they would be putting someone from University in who was twenty two giving them a budget of two million quid and he didn't have a bloody clue what he was doing and therefore [3.9.2] **we were actually having to paper over cracks in a lot of situations and spend a lot more time on things than we were being paid for basically just to ensure that the project didn't go pair shaped, we were covering other people and when you get no thanks from it because the people that you're dealing with don't even understand what you're doing for them because to do that you have to be experienced enough, it's a vicious circle of, I mean yeah very dissatisfied in some situations.**

Time: 39 minutes 39 seconds

Interviewer: And how did you feel you dealt with that?

Les: I suppose I felt that we had to be more diplomatic that I would have liked to have been, I would have wanted to have been straighter, I would have wanted to phone up the managing director and tell him he was employing a whole load of shity people and

that he needed to sort himself out, but I have in the past got close to that in some situations, I guess I go past a point where I would just rather not do the work rather than deal with the that. But [3.9.3] **it's a problem isn't it, I mean you're a designer, I think the other thing about designers is that you actually have a loyalty to this product that you're designing, it is a thing, it is a person, it has a personality it, and I mean in some situations you just say 'Well if I walk away from this I am abandoning my baby', so you have to in some situations just bite your tongue and just get on with it for the sake of this, this, this, I mean the emotions bubble with products I mean whether that's a good thing or a bad thing you know is probably a debateable point but I think it happens, well in fact I know it happens.**

Time: 41 minutes 13 seconds

Interviewer: When during a day, or do you ever feel agitated or restless? What are the circumstances that lead you to feel like that?

Les: [3.9.4] **I guess it's really when the number of things you are actively trying to move forward actually get to the point where you know dam well that you are now, you have gone over a point where that can actually happen and then you have to start prioritising as to what you're going to deal with and what you're not going to deal with and then you start thinking well actually am I going to be letting someone down if I don't do that, it's that sort of stuff really. I mean I think the truth is we are fundamentally almost driven by circumstances and that's not, that's not necessarily a worry unless those circumstances get so out of your control that you know that it could possibly be compromising your decisions. Or the other thing here is the way that we are organised is a little bit unusual, we're a partnership of four people and the partners take all of the client responsibility we are the people who go out to see potential new business we are the people who do the proposals and if we actually get that project to work on it will be the same person that the client has seen all the way through which is actually very good and it's a positive selling point but what it does sometimes mean is that you then could possibly be holding up a project because you actually need to be having a meeting with two designers and you can't have that meeting and they are waiting on you for that meeting and basically you are over stretched and the problem is that sometimes there's not much you can do**

about it. It is because of the way we're organised, it is our fault, but that can actually cause, that can actually cause anxiety I guess.

Interview Template Question Twelve

Time: 43 minutes 40 seconds

Interviewer: How would you describe your general condition when you feel you're working really well?

Les: Umm, [3.12.1] **buzzing I guess, elation. When it clicks in and you know it's clicking and you know you're doing an extremely good job there's a real buzz.**

Nick: Is there anything about the way you are in those situations that because you are that way it almost helps the work that you're doing?

Les: Yeah, I certainly think there is a spin off onto other people because [3.12.2] **we are a group of people and you can see if someone is in control and happy then that is very good and has a very positive impact on other people in the team as opposed to someone who has got their head in their hands and is crying in their office, not terribly motivational.** To be frank, and generally speaking, I think we do pretty well here on that level because I do hear some real horror stories. I mean this is our company so I don't tend to be in other peoples' companies and see how they work but we do obviously get designers who come from other companies and sometimes we get, well you think you've got a problem you should see where I have been for the last few years where everybody is at each others throats all the time and there's back biting. I mean generally speaking this is a relatively happy place most of the time so I guess we do feed off each other. But it is, there is no doubt about it your attitude, your demeanour, your wellbeing, it's just not you it must impact on other people definitely.

Interview Template Question Eleven

Time: 45 minutes 40 seconds

Interviewer: What role do you feel your emotions play when designing, you said there is a lot of emotional involvement and investment, do you feel that your emotions have any other roles while you undertaking design activities?

Les: They certainly make a huge difference, again on a relationship level, I mean I am not the worlds greatest salesman but if you get me going and I am trying to sell a design idea or I want my way and if I know that this is the way to go you will find it quite difficult to block me. So I mean, yeah, when you're actually doing the stuff that you're good at I actually think it's a very good idea to get emotional I think it's important because people, it's your body language that is what other people are reacting to. You know I can get quite stroppey or I can get quite elated I can force, I can change opinion depending upon which body language I am actually throwing out at the time, but I can't, I actually find it very difficult to, I mean some people are actually capable I think of actually altering their emotional profile for quite, proactively, so they are the people who are probably very good at selling they create an artificial emotion, I can't do that but if its there it well come out [3.11.1] **I don't actually suffer fools very well either and people know that if they're talking to me, they will get the message because I find it almost impossible to control some of those emotions I guess.**

Interview Template Question Thirteen

Time: 48 minutes 01 second

Interviewer: You mentioned earlier some of the different activities, the mental gymnastics that designers have to undertake I was wondering if you could go into a little more detail about those mental activities and how they differ? The different activities that a designer has to undertake what are the mental qualities that really aid and help those particular activities?

Les: I don't know again I find it difficult if it's something that you do, you almost have to look at people who don't do it don't you rather than, because it just becomes the norm. I don't over analyses it I do, [3.13.1] **I have noticed some rather bazaar behavioural things in the past, it's quite interesting and it drives my wife up the wall, simple things really and this begins to sound a bit creepy really or irrational behaviour but I, if I, if I was to go shopping which is supposed to be a completely joyous experience I tend to be thinking as if I was planning a project so I am, and it's not even on a conscious level but it's happening in my head and I can't stop it, which will be, we need to go there first we'll do that and if we do**

that in that order then we will actually complete this activity much faster than if we just followed your bazaar meanderings and I can't snap out of it and it's because I always have to be thinking in a sense what is the most efficient way of getting from A to B and there are some things that you certainly don't leave in the office some of which are possibly not that good if you're sharing with other people. But it's actually quite difficult when you, once you are always working on that sort of level it's suddenly quite difficult to do even mundane tasks in any other way than the way you would actually do it and I am slightly obsessive about time keeping, I don't, I mean if somebody says come around a seven' o'clock then I will be there at seven 'o'clock and I have so many friends that turn up at eight' o'clock so you tell them to turn up at six' o'clock and I think it's the same thing really because I have always got a clock running I've got a clock running on me and I tend to think that, like I am thinking now about four' o'clock this afternoon and that's what happens because that's what you do and so you do get, I mean [3.13.2] **I am not suggesting that that is necessarily good or even positive but they are the qualities that you invariably develop that you can't necessarily shake off even if you want to so they become part of you and in which case they actually, they actually sometimes, it becomes quite difficult to analyse them because they're just there really.** I suppose the real question really is, and I'm not prompting your questions, if there was no such thing as a design profession what would we do, what other activity would we do how would you utilise these characteristics that are special, not special in any other way that differentiates you from other people but how would you marshal them what would you do, what else could you be, I don't know.

Interviewer: That's an interesting question.

Les: Well it is really because it could be could dangerous, you know having all these people floating around the world who didn't know what to do with these innate abilities that they've actually got they might end up sort of miss applying them.

Interviewer: I am sure there are many people who do.

Les: I don't know what you would do I have never thought about doing anything else really I suppose. I did A' levels in Art, Physics, Maths and Technical Drawing and in

those days that was complete non-sense they couldn't timetable it, I had to do Art in my spare time because they said what possible reason would anybody have to try and match these subjects together and of course and the only reason was because that was what I enjoyed doing, there was no other reason. I think it's easier now a days because people can now actually see that that sort of tie up, a sort of left and right side of brain tie up, [3.13.3] **I mean I am very intuitive at this moment in time and now I am being incredible rational. I make very intuitive decisions and then I make a very rational case afterwards for making that decision but I mean half the stuff I do is completely subjective followed up with argument after the event.**

Interview Template Question Fourteen

Time: 53 minutes 38 seconds

Interviewer: One last question, are there any key moments during your time in the profession where you have changed your position or your understanding of what design is or what you do as a designer?

Les: yeah, I think, I think, I think they have been to do with listening to other designers talking. I think one of the dangers is that it is a slightly inward looking it becomes an inward looking profession. You know you build up your business, you build up your team, you build up a series of arguments in your mind, you build up processes to ensure that what you're doing can be done efficiently and that you're not going to go out of business and so there is a danger of it becoming quite inward. But then you go to a conference it might be a conference you're speaking at yourself and you're listening to someone else's presentation and suddenly, sometime things just clarify, so it's a bit in your head anyway it's not that it wasn't there it's just that it needed someone else to maybe make a two percent change in your thinking but that suddenly enables an enormous amount and I do believe it does happen like that I don't believe that, I think it's a good question because I think there are these mile stone things they are not necessarily just, I think what they are is a very, very slow build up of absorbing ideas that suddenly get triggered into something else and then you will run with that for a bit and it certainly has happened just simple thing like I explained earlier the phases we had actually been through. One day fifteen years ago we had to spend seventy thousand pounds on a three dimensional design CAD station which in those days was the equivalent probably to two hundred thousand now, but

that was triggered by a decision a change in direction because, we've got to do this guys because if we don't we ain't going to be in business and that is how it works I think there is this sort of gestation period followed by something followed by a decision which takes you off in another direction I do believe that happens I don't believe that it's just a slow process of coming to some decision without some sort of trigger, there's always a trigger and for me as I said it's very often talking to other designers, which is a thing we don't do enough of, as a profession we should be sorting ourselves out on that sort of level to make more of that shared experience stuff for the greater good of the design profession as opposed to just viewing it as a competitive business where I am not going to give my secrets away. So I guess that a lot of the stuff that has happened for me in some situations has been in other countries because I think when you go to other countries and you talk about design you've got much more of a UK design hat on than you would have if you were talking at something in the UK where all your competitors were actually in the audience. So that shared experience stuff is actually quite vital.

Interviewer: Well that is great and concludes the interview. Thank you very much.

End of interview

1.4 – Adrian Stokes

Adrian Stokes wished to edit his verbatim interview transcript before giving permission to use the interview material. Adrian Stokes' document is presented below; the researcher has made alterations to the document's form to illustrate: which Interview Template Question is being addressed; the data sections selected as the case study's data; and the coding applied to each data piece.

Interviewer: Nick Spencer

Interviewee: Adrian Stokes

Date: Friday 3rd March 2006

Location: ASA, Kingston

Time: 1409hrs

Interview Template Question One

Time: 00 minutes 06 seconds

Interviewer: My first question is, what in your opinion is design?

Adrian: [4.1.1] **I consider my role is to represent the person who uses the product I design and to make their lives better. We're working for our clients and we have a responsibility to them, but if we do the job well on behalf of the end users, then the client will benefit because people will buy it. It's a paradox; on the one hand designers are quite idealistic but on the other, it's a commercial activity. If products don't sell our client risks being out of business; there are many elements in the creation of a successful product.**

Interview Template Question Two

Time: 01 minutes 43 seconds

Interviewer: That's great thank you, so in that case what you believe it's for, what is the purpose of design?

Adrian: [4.2.1] **The purpose of industrial design is to improve the lot of the enduser practically and spiritually if we do our job the client benefits; people buy their product and they are successful.**

Time: 03 minutes 55 seconds

Interviewer: Do you think there is ever anybody who disadvantages from design?

Adrian: [4.2.2] **Phew. The world is disadvantaged because we design too much that is both unnecessary and poor quality. Replacing rather than repairing effectively dupes people into buying things they don't really need and is utterly unsustainable.**

Time: 04 minutes 56 seconds

Nick: That is interesting. What do you believe is going to be the future direction for design, could you elaborate on that a little?

Adrian: [4.2.3] Products are cynically designed to be updated and replaced not repaired. This feeds our worst instincts and makes us all victims of the very corporations who claim to design products under the banner of "service and the customer experience".

[4.2.4] The reality is that the industrial designer came into being to "service" the needs of "the customer", but the role has been cynically skewed to have a different emphasis and one that in fact is focussed on the needs of the company not the customer, servicing volume and obsolescence.

I design a lot of consumer electronics. The market is strangely polarised; on the one hand there are products with lifecycles shorter than an average mayfly and on the other products, no less sophisticated technically, designed with their primary function in mind with lifecycles often counted in scores of years and when they do break, they can be repaired. The best vacuum cleaner I ever had was a "beats as it sweeps" Hoover Junior. I took it over when it was 40 years old. Developed around a sophisticated take on "mend and make do" (the corner stone of so many lives not so long ago) but without any compromise in performance or diminishing of "service and the user experience" quite the opposite. Go to any dump and see the Dysons lined up.

A change in attitude could open up a world of opportunity for western nations in need of new industries and a world being systematically stripped of its commodities.

Time: 09 minutes 15 seconds

Interviewer: What do you see as the change that needs to occur there, is it a change of attitude...

Adrian: Change will be driven by simple economics. The energy/commodity crisis will force governments and business to re-evaluate the entire economic model our globalised, consumer society is founded on. We can't consume resources at the current rate and the emerging economies of China and India have really focussed attention on the urgency of the problem. Flying goods around the world, when it is becoming economically unsustainable to do that, at a time when we in the west can no longer feed ourselves is one example; like everyone I am just living in a bubble of

activity at the moment and quite soon we are all going to be living in a world which is very different and quite frightening.

Interview Template Question Three

Time: 11 minutes 12 seconds

Interviewer: Is that one of your main motivations within design, looking at those issues and how we respond or do you have other motivations?

Adrian: [4.3.1] **My motivation is the sheer enjoyment of what I do; which may seem selfish but it has a moral, idealistic dimension. I consider my client to be the end-user not the person who pays my bills. I work very hard and I always have done on their behalf. [4.3.2] I am extremely concerned about the future of our society, the lifestyle that we enjoy in the West and the awful effects that we have had on the lifestyles of others elsewhere in the world and the environment we and they have to live in. We live in a dangerous time, I am exercised and motivated by this undercurrent, but as a designer I don't have the opportunity to instigate the changes necessary, all I can do is talk, express a point of view in articles that I write and work hard on behalf of the people I design for. They are my prime concern and at that level I remain very motivated because I love what I do. Beyond that I remain very scared.**

Time: 13 minutes 02 seconds

Interviewer: So what are the particular enjoyments and pleasures that you get out of design then? Where is that love for it?

Adrian: [4.3.3] **It's just the moment really, for me the drug of design is when ideas pop out of nowhere. [4.3.4] As a student you have no self-confidence, in fact, when you have been practicing for 30 years you still haven't, but you learn that under certain conditions something will happen and when it does it's life enhancing. *'Where did that come from'?* Creative people talk about that moment and it's a fact.**

[4.3.5] **Subsequently there is a huge amount of worry to turn that moment into a finished product. Without that moment there would be no successful products**

and without that worry there would be no successful products. [4.3.6] There are all these opportunities to ruin that moment but when people use the product you have designed and acknowledge that it is better than the one they had before that is very rewarding. However, [4.3.7] it's that moment where the greatest pleasure lies. Seeing it realised, acknowledging you've done the best you possible can and people benefiting comes a close second.

Interview Template Question Five

Time: 15 minutes 13 seconds

Interviewer: Are they some of the criteria by which you would judge the quality of a project? Or do you have other sets of criteria?

Adrian: I wouldn't buy anything unless I thought it was fit for purpose functionally and aesthetically. I don't buy much but I do appreciate good work.

Interview Template Question 13

Time: 18.01

Interviewer: One of the things you mentioned before was putting yourself in a or learning to have the confidence to put yourself in a particular position where something is likely to happen could you describe what you meant by that?

Adrian: [4.13.1] **I found it very difficult the first couple of years I was at college. I just felt that we had to be taught things, that design would be a question of us learning enough information to solve a problem in a very methodical way. When I was a student I regularly used to drive up and down the motorway to visit relatives. At the end of my second year, on one of these journeys, I was thinking about a project we'd been set and the whole solution just came to me 'Whoosh', it really sounds corny, and from then on, in fact up until I had been practicing for about four or five years, at the beginning of a project, I would get into my car and drive around, preferable on a motorway. I was able to recreate the conditions and repeat the moment. When it happened, I would stop, record it in my sketchbook and carry on. When enough had happened I would go back to the studio and start working around those thoughts. Over the years I grew to rely on motorways less and myself more.**

Interviewer: And you didn't have to drive the car so much!

Adrian: If you knew where to look, I could be seen driving around the roads of Berkshire hoping to make something happen. [4.13.2] **It would be a really nervous process, I really felt scared by the project and could spend quite a lot of time going through the motions just filling sketch pads and being fairly uninspired.** [4.13.3] **I believe strongly in talent and intuition, there are many technicians, but the designers I have most admired tend to work in a much more instinctive way.**

Interview Template Question Six

Time: 21 minutes 30 seconds

Interviewer: That's very interesting thank you, how do you judge the quality of your own involvement in a particular project, how when you look back do you think that was a good job?

Adrian: When you're working for someone you gain experience and more independence to the point at which you feel you have some control over the quality of your work. [4.6.1] **Having started my own practice I found myself increasingly working through people, using them, not as a tool exactly, but you're trying to nurture the answers from them and actually, I found that I was unhappy with the work we were doing and the service we were providing.** It was also very costly. After 18 years I just said '*Enough*'. [4.6.2] **For me to be happy, required that I was a designer 100% of the time, I didn't want to employ a team or work through people just to interact with my clients and make my own decisions without compromise.** [4.6.3] **I have a CAD engineer and an administrator. I interact with the clients directly and love it. In the past the pressure of time and the relationships with my staff meant that I had to accept compromise for them to develop. I believe it's common to many, principals of design studios; they want to be designers and are unhappy but just accept that is the price of growth.**

Interview Template Question Seven

Time: 24 minutes 27 seconds

Interviewer: What would be your definition, or how would you describe a good designer?

Adrian: [4.7.1] **A good designer isn't a specialist, but is somebody who is just interested, intuitive, never satisfied, innately curious, and always striving trying to find a better way.**

[4.7.2] **I have employed some really excellent people from the Royal College, Newcastle, Kingston, Ravensbourne etc and I can think of only a few who have developed and become inspiring individuals in their own right. The rest became smug and complacent or stalled.** [4.7.3] **I'm not saying it's a good quality to have, but my observation is that good designers are never happy they're never satisfied, never content.**

[4.7.4] **The art and craft of design is still dependent upon being able to draw, make, use computers, coupled to an extensive library of practical and cultural know how. Interaction with others can turn good into great; it helps if you're curious about other peoples' points of view and willing to listen. So the ability to work with others in an open handed and open minded way is another essential, as is trust in your own judgement.**

Interview Template Question Eight

Time: 30 minutes 26 seconds

Interviewer: How do you improve and develop you own design practice?

Adrian: As a business or personally?

Interviewer: Personally.

Adrian: [4.8.1] **My external examiner at college was the head of a very large design practice and while most would have found it to be idyllic working in a Georgian mansion in the centre of Warwick surrounded by many clever people, I felt very quickly that it was process driven and less concerned with creativity & quality than getting the work out of the door and billed. I decided to move to**

London and had been searching for something less prescribed. Co-incidentally on a particular Sunday in March of that year I had been reading an item in the Sunday Times “Who will be who in the 80’s” and Fether & Partners was chosen under the design heading. Three people working from the crypt of a church in West London on a huge variety of projects from consumer products, to furniture and graphics. Their approach seemed thoughtful and the work beautiful, innovative and exciting. The next day I received a phone call inviting me for interview. I had another interview on the same day with Ken Grange at Pentagram and went to Fether & Partners a life changing / career enhancing decision. [4.8.2] **Design at Fether & Partners was just so different to the practice of design at DCA. It was uncompromising and practiced in an environment that was supportive and very informed both culturally and technically, a small team of excellent individuals working co-operatively together in order to generate the very best solutions. I felt then and still do today that there is an optimum size for a design studio and that the best relationships require a very close interaction between the client and the designer and at the highest possible level.**

Fether & Partners grew, it was the 80’s, and became 33 people with the same issues I was aware of in my first job and even though I was a partner in the practice by that stage I was working through assistants and not directly as I felt it was important to do. I set up as a with the intention of being the maximum of 5 people but then because of the demands of the workload we quickly grew to 18 people with a building in central London and the same set of problems emerging. I moved out of London in 1993 in the teeth of the recession, which meant I had the smaller team I wanted, but with the advent of new techniques, particularly 3D CAD, by 2001 I again felt detached from the work but worse still I was unable to use the tools I invested in to design products in a changing world. [4.8.3] **In 2002 I decided to reorganise again and now work with a very small team and work directly with my clients having learnt to use the tools and determined that I would never expand again. I have a brilliant CAD engineer, and administrator and take short-term student placements. After a career long search this is as perfect as it gets in my opinion.** [4.8.4] **I’m convinced designers are solitary individuals, like writers and artists. We need interaction and endorsement but on our terms. Working in contrived teams is inefficient and frustrating and whilst I do believe there are benefits in sharing thoughts and**

ideas with like-minded individuals, there are huge compromises in creating design businesses based on traditional business/company models.

Interview Template Question Nine

Time: 39 minutes 40 seconds

Interviewer: What are the difficulties that designers encounter?

Adrian: New business and doing good work, on time, within budget! One regret I do have, is that I promoted my business, as a, instead of Adrian Stokes. I should have taken a different approach. [4.9.1] **I think the best guidance I could give is to be happy. If instinctively you don't feel at ease then everything else will be hard work. The mere act of turning up to an office to work in an environment when you're not happy is soul destroying; once in that position it can be impossibly difficult to extricate yourself, the costs to you and others becomes too great. Designers require a high degree of inner peace and I spent many unhappy years grappling with the problems I had created or allowed to arise.**

[4.9.2] **In your first job you will be working under someone else's rules. In your own studio the choices will be yours but making the correct decisions, for your success and health is not easy. There is a conflict between what you enjoy doing and what you have to do. A business has to run, there are VAT inspectors and PAY inspectors, you have to operate within a framework of others peoples' rules and that is a huge distraction. [4.9.3] It becomes a case of swallowing hard and doing the best you possibly can, striving and hopefully creating the circumstances that put you in a frame of mind that allows you to do good work, which is all most designers really want the opportunity to do.**

Time: 44.03

Nick: And what you do believe that right frame of mind is? You have alluded but could you describe what that right frame of mind is?

Adrian: [4.9.3] **Being in an environment and working in a way which allows your innate enthusiasm and love for what you do, find its feet. Designers are enthusiasts with a vocation.**

Time: 44.48

Interviewer: Are there any times during the day when you feel particularly restless or agitated?

Adrian: Mornings. [4.9.4] **I am quite excitable and I use exercise and the discipline it requires, to help bring everything into perspective and more able to cope. Every morning before I start work I run or go to the gym and in the evening, walk. Without this outlet then I can become pole axed into anxiety induced inertia.**

Interview Template Question Eleven

Time: 46 minutes 38 seconds

Interviewer: That's a great description, thank you. What role do you feel your emotions play while designing?

Adrian: [4.11.1] **Emotions, I would say they are a huge factor. The feeling of moving things on, making the simplest decision about a detail which just makes sense; that moment can lift me through the next three or four hours of numb average-ness, it can make me believe in myself which is terribly important.** [4.11.2] **It's amazing how confidence can desert you; emotions are very fickle, lifting your mood sky high or just shutting you down. At those moments you never look at the bigger picture, 30 years of achievement for example, you always just think, 'Oh god I'm in trouble'.**

Interviewer: You obviously recognise when you have mental paralysis, what do you do to deal with that?

Adrian: [4.11.3] **I take myself off, phone a friend, walk; that is the beauty of working as I do now. I don't feel any guilt at being outside my own office or talking to a friend for an hour. I don't feel that I have to be here, although I generally am. I have an inbuilt work ethic, but in those moments I do what I have learnt I need to do to, get going again. I can be working on a number of projects at any one time so I can move around. A blockage in one area can be**

freed by doing something more mundane in another. It's a version of motorway driving again; putting yourself in the place you've learnt helps.

Interview Template Question Twelve

Time: 50 minutes 10 seconds

Interviewer: That's interesting. I think you have answered this a number of times already but I will ask the question anyway, how would you describe your general condition when you feel your working really well, at your optimum if you like?

Adrian: [4.12.1] High as a kite. In fact that I feel I can turn my mind to anything and a solution will present it self. At the best times I'll get up and mess around, make tea, just prolong the moment and try to share it with anyone in my proximity. It is really uplifting, corny as it sounds. I get interested, really interested and engaged with what I am doing. When those factors come into play then generally things happen and I am really happy when they do.

Interview Template Question Thirteen (cont.)

Time: 51 minutes 08 seconds

Interviewer: Do some of the different activities you undertake during design activities, do they require different mental attitudes or different mental qualities?

Adrian: [4.13.4] I'm fairly obsessive about everything. I will bother about the position of a stamp on an envelope I will make sure the typing sits in the right position on the envelope. It is an attitude that is ever present in my design work I'll tinker forever. [4.13.5] It is also a factor that looking back on my experience as an employer became a source of disappointment and anger; for the first 18 years I think I ran my business for my staff. I tried to create as good a working environment as I possibly could for the people I employed. I wanted them to feel respected, to have responsibility, look at the whole picture, learn from that and reciprocate. [4.13.6] Unfortunately with a few exceptions, that wasn't the case. They became complacent, lazy designers and lazy people who took things for granted and were more interested in going out to the pub at 5.30 than they were about their work and the world around them. I became a disillusioned nursemaid. [4.13.7] When people come through the door of my studio, it doesn't

have to be pristine, but I like to think they leave with the impression we care. The sum total of little lapses can be symptomatic of a bigger problem and I am obsessively concerned about the impression we create and the quality of anything that goes out of my office; I just like it to be right and I enjoy it when it is. When others don't share that concern, especially when you've worked hard to create the platform for them, it can be soul destroying. [4.13.8] So in answer to your question in design and the business of design there is a common thread of concern that should inform everything.

Interview Template Question Seven (cont.)

Time: 53 minutes 58 seconds

Interviewer: Do you think that being involved in design or through the personal characteristics that brought you into being a designer that you look at the world or experience it differently to other people?

Adrian: Perhaps. As a child, my Dad built a huge three-car garage, which he never kept tidy, it was always a mess, which I just loved to reorganise. I would take a whole day, remove everything and put it all back properly. I was 8 when I was first able to do that type of work. My Dad started to build a rockery at the back of our house which he never finished, so I did, at the same age and all the crazy paving for the entire back yard. [4.7.5] **I got immense pleasure out of building and making stuff. Incredible dens, things that I was certain would fly, a fantasy life grounded by a love of hard, grafting work. That's the case to this day it's just another version of what I do now and the satisfaction I gained from it is no different.** I actively participate or have a keen interest in many, many areas of life. From music, as spectator and performer, to sport, in the same way; I'm an obsessive reader, a repairer, restorer, writer, sometime teacher [4.7.6] **I don't think I'm unique, I would say that the designers I most admire, most have the same curiosity and diversity in their lives and it is that which provides the foundation or vocabulary that informs their work.**

Interview Template Question Fourteen

Time: 58 minutes 51 seconds

Interviewer: And my final question is, are there any key moments during your life or career where you feel that your perspective or understanding of design has changed the way that you either do design or think about what design is?

Adrian: My career and attitude changing moment came on meeting Ben Fether, who was able to relate to people and express himself in a way that displayed incredible insight and just made absolute sense to me. I wouldn't say he suffered fools by any means, whoever he employed he did so because he recognised some potential and he had a unique ability to develop it. This was through force of argument and intellect and because he commanded from and offered respect to all those who were fortunate enough to work with him. [4.14.1] **He made me realise that you didn't have to be a cruel to be successful and there's a much wider world than the blinkered world of design events in the company of other designers. He also changed me from a talented inventor, into an industrial designer able to refine and redirect raw thoughts into refined and inventive finished products that were conceived and developed on behalf of an enduser not just my own ego.** Ben became a victim of his own enlightened attitudes and over time became disenfranchised from his own business, which is a great shame for the world of design which never really appreciated his genius, as a visionary designer or as a manager.

I am not religious in any sense but the idea that there is some inexplicable other factor at work in the creative process does make me wonder. I once employed David Tonge who was with Jonathon Ive at Newcastle. They were best friends and did their major project together. Jonathon Ive was a Christian and the two of them became estranged I think because David found it quite hard to reconcile himself with the views his friend espoused. [4.14.2] **I was given a book by JI on the subject; I browsed it, but it wasn't for me; having said that faith clearly offers him something very important in his pressured world. There are clearly other states of mind that allow design ideas to arrive fully formed without any conscious input. That you can learn to develop frames of mind which encourage completely unpredictable ideas to emerge has always been a concern/ interest.** [4.14.3] **I did know a model maker, an ex RCA designer who had some difficulties and used meditation to, as he put it, switch into another frame of mind very quickly when he ever felt unacceptably stressed. I loved the idea that this was possible and that his altered**

state could be entered into so straight forwardly. Ben Fether my former mentor, went into therapy for years I think as a direct result of his disappointment with the way life worked out individually and as a designer. He's now free of all that baggage and talk to him you're talking to a 25 year old mind with the experience of a 70 year old man. But given some greater understanding then maybe he could have avoided the distress in his late career and we might have had greater access to the 25 year old mind that never realised its full potential. Likewise perhaps this same frame of mind, which I've tried to describe, but which is a happy consequence of some odd-ball techniques, has more to it than we care to accept in a sceptical world.

Nick: That's something quite special.

Adrian: Yes I think so.

Nick: Well it's certainly been an absolute pleasure talking to you. Thank you very much for your time.

End of interview

1.5 – Steven Kyffin

Interviewer: Nick Spencer

Interviewee: Steven Kyffin

Date: Wednesday 30th March 2006

Location: Centre for Design Research, Newcastle

Time: 1142hrs

Interview Template Question One

Time: 00 mintes10 seconds

Interviewer: What is design?

Steven: Gee, It's everything to every type of person. [5.1.1] **At one level it's architecture, which is an overall holistic framework for building the constructed world.** [5.1.2] **To design is the mechanism that human beings have developed in all their different cultures and timeframes to help make those decisions to create**

a world that reflects us and supports us and enables us to transform ourselves and support our needs at all levels. But actually that just isn't enough because it just isn't an ad hoc set of circumstances, it isn't just planning, it isn't just making decisions although all those things are there. [5.1.3] **Design as we understand it, or as I understand it, reflects a certain amount of cultural sensitivity and cultural expression, humaneness, humanity over and above while also reflecting or responding to the functional needs of something we make whether it's a building or an electric drill or this microphone so that it has a relevance and signifies something of our humanity through it, then it is, then it has design in it rather than solving the problem at a functional level.** These words over history, they have a history, they refer to different aspects of us in different time contexts but actually architecture, engineering and design, art and technology are all the same sorts of words but they have different meanings in different time spaces. Technology is the Greek for 'to bring something into being', art is the English for 'thou art', 'to be', so they are the same word but we use them differently now, and engineering is from the French ingenious which also means, 'to be creatively constructive and to make things' and architectonic is 'to construct the world in the way that God constructed us' if you want to go to that level of abstraction. So it's all the same stuff but [5.1.4] **what we mean by design today is a fight against purely intuitive craft, a fight against purely modernistic, Teutonic engineering of form and function and minimalism and placing us in a machine age world. So the artistry of our cultural expression can be in and live over all those things.** Now, it also has to fit in with the thing we call the commercial world so there is transaction. We differentiate art from, or I differentiate art from design where art is a, I regard art as a personal expression of myself in the world and how I see the world through my personal creativity, through my personal language, for my personal gratification, primarily, and if other people enjoy it or are inspired by it or receive insight through it, then lucky them, as it were, and lucky me, but it's not my intention to communicate the world to others, if I wanted to do that I would be a journalist or I would be a commercial artist where as a private artist so that's where, I'm just rambling. That's where commercial art grew from and you can have commercial art in music, it's called jingle writing, you can have commercial art in poetry, in the linguistic world from poetry to journalism I guess you can have personal art in mathematics because Harkin's uses mathematics as his artistic tool to understand complexity through the mathematical language, how he

deals with it in accounting when he becomes an accountant is the public face of mathematics. [5.1.5] **So design for us, the visual language people, amalgamates, integrates cultural expression through sounds, through form, through poetry, through sculpture, through commerce, through different forms of technological progression into the public space not into the private space. It has to be publicly understood, universally,** it's not what Steven Kyffin says to the world in the form of something, although that's what appears in the Museum of Modern Art or in a Duchomian way we use the public language to communicate a private message, but design has to be understood by the public. [5.1.6] **The processes, the creative processes of a designer are entirely private and are nobody else's business except when you have to make money out of it then it has to be repeatable, but basically your creative process is yours the out-put is theirs.**

Interview Template Question Two

Time: 05 minutes 35 seconds

Interviewer: So what do you believe design is for in that case?

Steven: [5.2.1] **The purpose of it, to enrich and build our civilisation. It's a building civilisation tool mechanism.**

Nick: So in that sense...

Steven: [5.2.2] **We're designing life.**

Time: 05 minutes 52 seconds

Interviewer: Does it always benefit everybody then, or are there certain people who are benefited by the act of design and certain people who aren't?

Steven: [5.2.3] **Well, it depends how conscious the people are, everything affects everybody eventually at one level or another, whether you notice it, whether you value the affect is a completely different issue.** [5.2.4] **So even at the most prosaic level or banal level, the work of Alessi, Alberto Alessi in the 80's by trying to ask artists to speak into the everyday world of hotel cutlery, has actually changed**

what happens in Wal-Mart or what happens in Boots or what happened in Philips and there are many people who think he was barking up the wrong tree, and in its pure form it didn't do anything for them, what Mandini doesn't touch them, but actually it just did because even in the most crappy Mr Biwright you can see the references and so it is touching them. [5.2.5] It is for and does touch everybody, just like art does it affects us all whether people are sensitive to it is a completely different issue. Whether people notice that it's touching them.

Time: 07 minutes 17 seconds

Interviewer: What do you believe is the...

Steven: [5.2.6] **And it should touch them because most the things we make insult humanity it makes life more complicated rather than less it makes you a slave to the things we make rather than them being a slave to us and by slave I mean in inverted comers 'servant'...**

Time: 07 minutes 38 seconds

Interviewer: Could you go into that a little bit more what do you mean by that?

Steven: [5.2.7] **We create things in our image, which are representative of us, as extensions of us, as prosthetics of our own thought processes or physical, so everything is a, it means we can drill a whole or we can talk to someone over long distances, or we can do something or we can be something. The problem with them is that we become victims of it in the end in a Shelly sort of way creating the Frankenstein we become a victim of them. They end up determining how we work and how we live and what we do, so we become a victim, or we come under the control of the things we created they start biting back, not consciously of course as they don't have any consciousness, we become subject to their control.**

Time: 08 minutes 28 seconds

Interviewer: So what is happening there, why does that happen? How do you understand that?

Steven: That's a massive question. I don't understand it. [5.2.8] **I know that we're not perfect and the things we make aren't perfect that's why we end up subject to their imperfection because we're not conscious enough to transcend our actual intensions.**

Time: 08 minutes 56 seconds

Interviewer: So do you think it's our ability to create the object or our ability to understand those objects. The thing that means that products bite back, does that reside with the product or with the person?

Steven: Well nothing resides with the product so there is nothing wrong with a bow and arrow but when a bow and arrow is pointed against you. The Arthurian legend of Excalibur, there is nothing wrong with Excalibur but if Excalibur gets into the wrong hands Excalibur is a menis. [5.2.9] **The thing has no responsibility, only we have responsibility and the issue is whether we have reaction, in other words whether we don't respond but just react unconsciously and unintelligently or whether or can respond and create responsibly and of course we can't because we can't know the effects of all our actions or the consequences we can not know them because we're creating into our own space. We just don't think enough about it, for long enough, always.**

Time: 10 minutes 00 seconds

Interviewer: Do you think there is something that can be done there, I mean we don't think long enough about them always, is there something, from your perspective as a designer who puts these objects out into the world that can have some influence on those interactions or do you think it's with the awareness of people in general?

Steven: It's always been, that's right Nick, [5.2.10] **there has always been a very big paradox between understanding what I do as a designer, as a proposer, as a creator, and what other people do as a receiver, can I be responsibly for what other people do as I consequence of who I am, no. Can I be responsible for minimising the effect I have on others, yes, I think.**

Interviewer: How do you do that?

Steven: Maybe you can't even do that, maybe you can't even do that. If my intention, it all depends upon my values and what my intentions are, if my intentions are to make as much money as quickly as possible by exploiting the known weaknesses in other people then that's what I would call, what most people would call exploitation. Now modernism said we will make the world as efficient and as accelerated and as fast as possible without any real understanding what the consequences of that ambition were. Now we begin to understand a bit better now, but that doesn't mean that we were wrong to do what we did we just did it in ignorance and we're still doing things in ignorance now. It means that if you go back to where you were and ask would I do it any differently, no, because unless I go back with what I know now, but then it's not the same thing so, that's why I don't have regrets about what I do because unless I deliberately do things that I know are wrong...

Interviewer: What do you do differently today that you weren't doing 15 years ago, with regard to that conversation?

Steven: We are much more explicit about what the likely effects of what we create are on the people who may touch later and we're much more explicit about what the motives are for making the things we make. So we ask more questions and we take, we are much more long term about how we make profit, or make return on the investments, what the motives are for making those things. There was a very cynical view and it was true that, designers designed things that people didn't really want, for prices that they didn't really have money to pay, for needs that didn't really exist, there was a third thing, they said that we all designed for obsolescence because the thing was obsolete two years later, but it's sort of inevitable that we design for obsolescence because when you try something the next time you try it's better, therefore, the time before wasn't as good, therefore, you don't need it anymore, it's the same with any, every artist paints for obsolescence because they painted over the top of the first one so why waste the paint; because you can't learn without doing it, so you have got to learn through your error and error cost. So the question is how many errors is it responsibly to go through and at what cost. It's a debate I have with myself at the moment, it's the ethics around, is it right for Sony, or how does Sony justify itself to make a ten thousand dollar machine that doesn't really work the way

they want it to work and it doesn't work the way they want it to work because they're simply not sure about how it should work and they don't really know what people will do with it so they make it as best they can with a little amount of information sell it for ten thousand dollars, put it on the market, ten thousand geeks spend ten thousand dollars on it and give them another million or ten million to put into their R&D fund to make it 200% better than it was when they launched the first ten thousand. So now the public is becoming the funding agent of the R&D effort of the Blue Ray Disc. Now is that ethically right or wrong or have we forced people through their own greed into your R&D community without them really realising it. Some people would say that you should just give them the first ten thousand as a fee for telling you what they want to do with it and how it works and how it doesn't, but you would say that everyone is free to choose to spend the ten thousand dollars, well they are but their greed is compelling them, or their inquisitiveness or their...

Interview Template Question Four

Time: 15 minutes 04 seconds

Interviewer: So in your process and in your view what are the things about you that at least allow you to have that debate? What are the things about you that are driving, influencing the way that you approach your work today?

Steven: [5.4.1] **Well I am not actually designing or making propositions personally, I do it as part of a team so you have to resume the company the group the collective I work within. But me personally and how I deal with the propositions that I make whether it is managerially or programme wise are my values, my operating values, my life values and my level of integrity in living out those values.**

Time: 16 minutes 02 seconds

Interviewer: What sort of values are they?

Steven: Well, [5.4.2] **I don't push myself to make me more important than those around me; that I will not always force myself to take the lead; that I will allow other people to speak into my life rather than knowing what is right all the time; that [5.4.3] I will try to build unity in debate, not sameness, not a sense of**

collective understanding, to build peace so that there isn't a continual fight between us and then and me having the power and you not having the power and me being able to tell you what is good for you or right for you or what you will have because I can exploit your weaknesses; that [5.4.4] I am happy to change my mind; that I am not out for personal gain; that [5.4.5] I am other centred rather than self centred. These are values, these are not codes of behaviour, values drive behaviour they're not prevently co-existent. [5.4.6] **I try to think ahead so that I respond I don't react, a knee jerk reaction, by intention of course every so often probably even everyday you get caught out because your instinct takes over, so how else would I summarise them. [5.4.7] I try to be aware of my human instincts and manage over them, I know that your instincts are that you want control that you want power that you're in charge, self protection, these are all cultural instincts, which people value these days but counter-culture is to say, yes you can attack me, yes you can put me down, yes I won't built factions, yes I won't go for the individual, yes I will go for the collective, yes I will go for slower growth if it means we all go there, yes I won't go for point leadership but I will go for enabling,** these are all counter culture I mean they may be called, people may be waking up to these, that these are actually more helpful but they are still counter culture because they counter human instinct and so as a company we try to do that and we do believe in the triple bottom line as a company, Philips believes in the triple bottom line on sustainability, the planet, the economy the way we relate to each other the economy of trade, relationships and the person. So we don't make things that overwhelm people, well we try, we try to make things that overwhelm people to the least, we try to make sure that the finite resources are stuarted not exploited and we try to make a financial system that works for the whole world holistically rather than for a group who have become dependant upon a mass group.

Interview Template Question Three

Time: 19 minutes 25 seconds

Interviewer: So what motivates you professional now? What are your professional motivations?

Steven: Other people's growth.

Interviewer: I am assuming that this isn't the same motivation as you had when you began your career, is that correct?

Steven: Yeah, but I don't know why you ask that question.

Time: 19 minutes 27 seconds

Interviewer: How has your motivation changed throughout your career?

Steven: What changed it or how has it changed?

Interviewer: If you can answer why has it changed then that's fantastic, if you can describe how it has changed?

Steven: Well, it has changed from, how it's changed, [5.3.1] **it's changed from being discipline centred, which is, I want to design beautiful things for people to enjoy and therefore to help companies to make more money by improving them technologically, humanly, ergonomically, culturally and aesthetically because design says you should be able to do that. The motivation for that at the time was core modernism because it would make more money, because people would be seduced by those qualities and therefore buy more of the stuff because it was better than other versions but even all that being true. All that is still true and we do create wealth by it and we do create better quality of life because of it, but I did it because of the discipline and because that is what I was trained to do, that was my level of consciousness, now I do it because I am 25 years older and I notice that it touches every part of my life and the world isn't just about the design discipline it's about everything simultaneously and I think it may be patronising to say it in anybody's else's context but it's also, it's just about growing up, it's about maturation, of being a human being and realising that in our own time/space world very few people rely on certainty and everything is connected and that's just something that happens...**

Interviewer: Does that happen to everybody?

Steven: I don't know, I have no idea what happens to everybody!!

Interviewer: I wondered if by speaking to people that was something you had observed.

Steven: Many of the people I know and live with and relate to and grow with, yeah, admit the same things and many of them I relate to less are not aware of it but that's why I relate to them less because they don't share these sorts of values or reasons or levels of consciousness. My experience tells me that I have met very many people who are unconscious of what they do and why they do it, even to the extent to asking very close members of my family, extended family what values were you brought up with and how do they direct the way you behave, that question is not understood let alone how to formulate an answer because they are so unconscious of the cultural codes that were dropped into them and how that has affected their values and how they behave and how they enforce them on others in an instinctive way, they are completely unaware of that.

Interview Template Question Six

Time: 22 minutes 49 seconds

Interviewer: How do you judge the quality of your involvement within a project?

Steven: We have a, within Philips Design we have an evaluation process, but it does not explicitly allow us to measure the quality of a person's to that project specifically what it measures is the contribution of the project delivery, the project, the projection to the benefit of the client as a whole from us. There are certain tasks, activities that happen within a project, its direction, its negotiation with the client, its solution, its articulation through the graphic form or modelled form, the amount of resource that was used in terms of people and money, the timing, the amount of cost, which determines it, the effectiveness of its delivery. How do we measure my contribution?

Interviewer: How do you...

Steven: How do I measure my own?

Interviewer: How do you judge it?

Steven: Formally, there is a principle at the end of the year or every six months we have a review what I do and how I do it with my peer group, and we do that by talking to the people I relate to and asking them how they perceive my contributions according to the personal contributions agreements that we have. I am giving you the very formal answers because you ask it in a very formal way, to avoid saying because it feels right, I am doing that on purpose, not to say when I feel like I have helped. [5.6.1] **If the project has enabled me to grow and learn and develop so that I am more effective, more helpful, next time then that is good for me but that doesn't tell me if I have contributed to the project to the activity well. I can only do that by the others in the group by talking to them against given references and asking them whether I have helped either initiate it, complete it, transfer it, integrate it, hold it together, give it direction, give it enthusiasm, motivate it and so on because that's my job now as a sort of direction coach.** [5.6.2] **Coming up with ideas is pretty easy making them reach the other end of the net is not easy. Ideas are two a penny at one level, even through people say, how do you have ideas, ideas is not the problem, making them the right ideas, better ideas is a problem and you can only do that if you have reference points to judge better-ness against and then successful exploiting them...**

Interview Template Question Five

Time: 26 minutes 07 seconds

Interviewer: How do you judge that better-ness, of an idea?

Steven: Of an idea, of a project, it's difficult to know whether you're asking it generically, how do we do it, we have a, at the outset of a project we build a set of criteria to which we judge the ideas against and then do all that, so we have an effective externalised process. How do we actually do it, generically what it really means is that the ideas are framed against the receiver, the beneficiary of the idea. Now if the ideas are to generate technological improvement, if the ideas are to generate better understandings of people, or better understanding of the market, or a better way of introducing or developing new business models, then the stakeholders are the people who help us judge whether the idea is better for them, whether it

enables them to fulfill their goals and ambitions and passions and so on, so we get the stakeholders involved, all of them and try and get on the table where their trying to go where their interests capital actually are and try to respond to that. And that comes back to how do I know if the quality of my input is right. [5.5.1] **Everything is dependant upon the stakeholder and who are they and how do you know that they're not being selfish, self-centred and so on is an other issue but ultimately we get the stakeholder objectives out early and then respond to those accordingly appropriately.**

Time: 25 minutes 37 seconds

Interviewer: How do you balance that against your gut instinct for, when you propose something you must have a sense of its appropriateness or the strength of a direction you're proposing before you put it forward to be analysed by the set of criteria. First of all, how do you judge those immediate reactions and secondly how do you deal with those reactions against the...

Steven: Yeah, yeah, I remember reading, it might have been Terrence Conran who wrote it in the entrance or the intro of a book he edited or helped edit in the 80's or early 90's on the industry, a century of design about the 20th century design, it was a French book and he reminded everybody that design or industrial design had always had this paradox, lived with this dilemma between do we give them what they want or do we tell them what they need and many disciplines have that dilemma whether it's marketing, restaurants or being a doctor, *'I can see what is wrong with you, oh I am fine doctor, no you're not fine'*. So if someone comes to you with a problem and you say *'Yeah, yeah you've got that one but you've also got seven others as well'*, do you tell them or do you solve the problem they told you they've got. Consumer driven counselling says you only deal with the problem they say or you keep asking questions until you find all the others or you can drop things into conversation which says, *'I sense there is rather more behind this'* and a bit more comes out and a bit more comes out, at the end of the day lots of people call this education you're having to teach them to see themselves more truly as they are or as their organisation is or as their problem is in order to help you speak into it so your gut instinct is based upon two issues which I won't go into a lot, one is intuitiveness which comes from the self and one is revelation which comes from outside the self. And the question you might

want to get on to is what's the difference between truths that are revealed to you and things that you feel in your gut and there in lies a big issue about where do ideas come from the outside or the inside, but ultimately yes designers do say they know. How do they know and how does the other person not know what the designer knows and how does the designer find a way of telling the other person or the client the customer, the customer doesn't know enough yet but will know when they experience it or when they grow, when they grow up or when they realise that there is more to life, that people will pay an extra 20p for something even though it's only a 2p object because the value is in the, and is that, [5.5.2] **is it our responsibility to give them the best quality because we know that it's culturally enriching and to give them slap dash stuff is an insult to their humanity even though their not sensitive to notice. That's been a designers and architectures dilemma or any creative persons dilemma forever.**

Time: 30 minutes 59 seconds

Interviewer: And how do you feel about that, how do you deal with that?

Steven: [5.5.3] **My position on it is that I don't think you can tell anybody, even when I want to and I do it when I am teaching, you just want to download 30 years of experience into someone's head in five minutes because you know that they don't have to go through the pain that you went through. But of course you can't they have to, they have to learn it for themselves but perhaps they could learn it a bit quicker otherwise we never go forwards, it's a shame we only live for 60 years instead of 200 hundred. The dilemma is to realise that you can't just download it all at once but you do have to enable them to learn so learning or enabling or teaching is not about teaching it's about enabled learning and it's the same with customers and clients. It's just not humanly possible to make someone hyper sensitive to the high qualities of anything when their instincts or their level of sensitivity is either being destroyed so much by conditioning or their parents or their background or their culture or their need or their poverty or whatever it happens to be whatever issue it is that restricts them from receiving the full revelation and beauty, you can't just go in there and switch the application switch on in the computer and go ah now you'll get it, it just isn't going to happen, so it's a long term**

thing and you can only go as far as you can, I'm a bit impatient so I try to do it all at once, which doesn't work.

Interview Template Question Seven

Time: 32 minutes 31 seconds

Interviewer: How do you define or describe a good designer? What's your definition?

Steven: Gee whiz, you're going to quote this, [5.7.1] **someone who is open, imaginative, curious, passionate, rigorously collaborative, will work with others despite the pain and is always in search of the highest level of expression, wait how do you qualify that, the highest... I don't know how to do that, I don't know how to say that, the highest level of art, someone who can plan, someone who is very logical, who is poetic, someone who is instinctive, someone who can be very justified at the right time, someone who can speak all languages of all customers simultaneously, someone who can be at one with you, someone who can unify all the complexity, someone who can let go and give their ideas away and not get upset when people trash them, someone who can make an offer a projection a project, a project with an open hand, someone who doesn't criticise other people does not destroy other peoples' inability to understand them, someone who will create and then give it and let it live, someone who does not confine the receiver into the world of the creator. Is there anyone like that?**

Interviewer: If you find one let me know, that person sounds very very interesting.

Time: 34 minutes 24 seconds

Interviewer: That whole bag of qualities and characteristics

Steven: [5.7.2] **Somebody who is conscious about what they are doing that is the most important at all the different levels.**

Interviewer: Would that be one of the highest qualities there?

Steven: [5.7.3] **I think because design is about planning, is about intention, it's not about intuitive flow and instinctive and so on in the way that an artist might**

be. At the Technical University of Eindhoven, the poor guy's, the students are put through this very rigorous awareness of, they have really got to be able to communicate visually, linguistically, visually, verbally does that mean the language of the word, verbally and mathematically the same complexity models the same complex models of reality, in the diagram, the model, the picture, the word and the number. So an engineering circuit board can also be written as a piece of prose, it can also be drawn as an illustration, it can also be made as a piece of sculpture, it can probably also be made into a symphony, I don't know, represented as music, those guy's have to be able to communicate all those, consciously the same story the same narrative in those three languages simultaneously. [5.7.4] **A fine artist doesn't have to do that a musician certainly can't do that designers and architects are the one practice, the one discipline where they have to be able to communicate in words, numbers and pictures simultaneously. It's really hard, or they need interpreters.**

Interview Template Question Eight

Time: 36 minutes 04 seconds

Interviewer: How do you improve your design practice?

Steven: [5.8.1] **Through practice and reflection and the relationships with the people I work with which helps inform it.**

Interviewer: Is there any particular area that you, I mean when you practice and then reflect you could reflect upon the decisions that you made, you could reflect upon the quality of your interactions with the team, are there any particular areas that you focus upon when undertaking that reflection?

Steven: For myself personally? [5.8.2] **My biggest challenge is my relationships with other people so, and I think most of the world suffers from that one, but certainly I think it's true for me so that is what I reflect upon most, and also being able to articulate in English in the spoken and written language what it is I am trying to say in the visual language and learning the languages of all the different stakeholders, that's very hard.**

Interviewer: So, how do you get a sense of improvement there?

Steven: I don't think there is any point, [5.8.3] as design is a public act my improvement is noticed by the effect it has upon others and therefore if others report back, discuss, quote, refer to, involve me more and more and at more levels then I add more value to their world and the world that we all touch. [5.8.4] So if the things I have to say are quoted or if the things I draw are reprinted or if the teams that we inspire and put together grow and can sustain themselves without me being there then the spirit I have put among them lives on and the leadership lives on without me having to be personally visible and then you know that the intention has a life of its own rather than being dependant upon me as a persona, or me as a physical persona.

Interview Template Question Nine

Time: 38 minutes 51 seconds

Interviewer: What are the typical difficulties that designers encounter or that you encounter?

Steven: [5.9.1] Linguistic complexity, not being able to communicate with others, having expectations, which are lived of others, which are lived out through frustration which in fact repel others rather than include them, being dyslexic is the word but, being numerically dispraxic, there must be some word but I don't know what it is, it's not dispraxic, but there must be some word that represents the fact that you can't communicate with people in other disciplines, that's the biggest thing. [5.9.2] Design is an integrated discipline, is a connected discipline and if you can't speak with the languages of the people you are connecting with then you end up in isolation and therefore you're not being a designer anymore.

Time: 39 minutes 41 seconds

Interviewer: So what are the difficulties of letting go of that individual sense and becoming more integrated into that team that inter-disciplinary act that you're describing?

Steven: What are the difficulties, [5.9.3] **you're having to deny yourself and it's not in our nature to do that, ego or whatever it is hits out early. It has to be a conscious choice to let go.**

Interview Template Question Ten

Time: 40 minutes 24 seconds

Interviewer: What are the design situations that put you in the greatest turmoil?

Steven: Me personally, [5.10.1] **I am personally more motivated by the idea becoming reality rather than the people growing while making the idea become reality, so I am more of an issue person than a social cohesion person, although other people tell me that's not the case but that is how it feels to me. And [5.10.2] I noticed even with talking to the students just now, I just want them, I am torn between them getting on with it and them making sense and me just listening to them in order to make them feel better about themselves and feel more confident and therefore grow a bit more, because I am trying to get out of them what their ideas are so that I can speak into them with them to help them go forwards, where as they probably don't need that they just need to be encouraged as human beings but that doesn't help their work today, it helps them today but not their work so that's my big...**

Interviewer: Does it not help their work because it helps them?

Steven: Well it would do but it's slower, well it might not even be slower because by forcing the work forwards it might not help them anyway so it doesn't make any difference the work might shoot on but they don't so they can't carry it on once you have left the room anyway so, it may not be slower, it's just that I have more natural focus on the external things rather than the internal things. And yes I could just cuddle them and make them feel better and as a result they will be better and stronger and more confident and therefore their creativity will reveal more, will produce more and therefore together will move on, maybe you can't, but that's the way that different people interact with everybody, so that together everybody speaks of different aspects of themselves and their output, their aura, they all go on, but I tend to focus on the, what was the question?

Interviewer: What are the design situations that put you personally in the greatest turmoil?

Steven: That one because [5.10.3] **I know that they are screaming at me just saying just make me feel good and I am pushing the, because you only get 20 minutes or half an hour with someone and I could just listen that would be really helpful, but I feel that for me it's not helpful enough because I haven't had a direct influence on the but it probably has, but that's my own personal added value.**

Time: 43 minutes 01 second

Interviewer: That leads quite nicely onto, how do you deal with those turmoil's and I guess that dissatisfaction?

Steven: [5.10.4] **Well conversations like this are good because it makes me aware of what is actually happening, but I talk about these sorts of things a lot with friends in all sorts of aspects of being a father, of being a husband, being a son, being a brother, being a professional, being a coach, being a parapsychic teacher coming in here two days a year or whatever. So I am quite conscious of what I do and how and why I do it, I am quite aware even though the heat of the moment overwhelms my consciousness from time to time.**

Interview Template Question Eleven

Time: 43 minutes 40 seconds

Interviewer: What role do you, we may well have covered this and if you feel we have we'll just skip, what role do you feel your emotions play while designing? Or being involved in your role as a professional?

Steven: I don't really understand the question, answers are: important role, significant role, we all have emotions about everything all of the time, what do you mean by emotions?

Interviewer: So, the things that come up, are they ignored, do they indicate that something needs to be dealt with, do they at all guide or help, influence, I guess the way that you behave, act, speak during a project or do you not really consider them in that...

Steven: I consider them a lot because [5.11.1] **I think I am conscious of what is going on. I do become impatient, so I do show my impatient' but I am also very sensitive to people and to self, in myself I am sensitive to what is going on around me although in some peoples books I may over react take things personally when they are not intended, jump to conclusions about other peoples' intentions. But if you mean does my lack, does my ability to control my emotions dampen the way I am passionate and ideas about things, maybe it does, maybe it does because I am quite controlled about those sorts of things. I am very self-conscious as a person so.**

Interviewer: Do you mean self-conscious or self-aware?

Steven: [5.11.2] **Conscious of myself and therefore I hard standing up in front of people and risking making a fool of myself because I am always thinking they know more and they can understand and see my own insecurities or not knowing enough and in fact they probably can't and don't even realise, I don't know if that is an emotional response.**

Interviewer: I think you indicated there that that can, well what comes up within you and what you become aware of can affect the way you feel within a situation and the way you approach it, do you feel that, that does then have an influence upon those around you and the way you go about your work?

Steven: It must do, it must do...

Interviewer: But I guess that it's difficult to tell what that is because it becomes so complex.

Steven: Everyone sees it differently because they are all in their own time-space context, it must have a, it does to have a, it's got have, their all human beings they've all got senses out there.

Interviewer: When these things do...

Steven: What do you mean by these things, what are the typical...

Interviewer: Ok, if you were to take the sense of insecurity that arises when you are putting a pitch across then you would get some feeling arising and you felt that it was due to that, what would you describe as I guess them being used unskilfully or them being used skilfully. Yep, that happened and I felt that way but the way that I acted I felt was as skilful as I could manage but sometimes I know I behave that way and I feel that that's not necessarily the behaviour I would like to endorse.

Steven: So the question is?

Time: 48 minutes 10 seconds

Interviewer: What do you consider is a skilful way of dealing with that?

Steven: [5.11.3] **You make it sound like one should be aware of those things and I think that's true and then to start to consider those things and realise where you have to change and don't see it as a failure see it as learning and growth and make the adjustments and move on apparently I am quite good at it all so it doesn't really, it doesn't actually happen. See, one person's pain is another's gain, I know that I push people, someone comes to you and says I want to work with you and can I try an option for three months and I know it's going to cost me a hundred grand to do that, I think gee can I spend a hundred grand of someone else's money on a, seeing weather they want to do it or not, now commercially that's just nonsense unless they can convince me that they are absolutely desperate and they really want to and I am going to get my hundred or eighty of it any way and in the end it's a risk and an investment and if there's a strategic process in place to minimise those risks and in fact the 20 grand you're going to loose has already been earned by the last person, and I have space and time to manage it, and if the person says these are my ambitions this**

is what I am working towards this is why I want to do it then it's plainly obvious it's a minimum risk. If they say I don't really know what I want to do, I am not really sure I think I will just hang around for three months. Now if I say why do you really want to do this, what's your passion actually telling you, where do you see design going, where do you think your contribution will be to the way design works and the person say, I don't really know I want to come and see, now I will push them to braking point because it is obvious to me that they're not interested, they do not have an interest in what we're doing and their future contribution to it, it's just something to do for three months to sort the problem out. So I will keep going on, because if I say, if I just listen my insides, no my ears are telling me that they're not interested they would rather go and do something else but it's an option and it may reveal something so they'll go in the washing machine and spin the cycle and see what happens, if I just listen to that and then I have to make a decision about weather to have them and I know that somebody else is encouraging me to say yes, then on what authority on what reference can I say yes because the person hasn't said anything as to why I would benefit or why the group would benefit or why department or the function would benefit from their contribution, so if I ask the questions then I will know, but in the process of asking I put them on the spot it shows my impatience and my in-depth, insightful questioning which annoys them because I am now exposing lack of consciousness, lack of direction, lack of understanding, lack of passion, lack of identity, lack of belonging, that hurts, instinctively they feel it even though explicitly they don't know why they're doing it, now I know I do that all the time, I did it with all six students, I know I do that, but I don't think that is wrong, it just hurts, I know it hurts.

Time: 51 minutes 58 seconds

Interviewer: Ok I think that's a really good answer.

Steven: So pain doesn't necessarily mean wrong it just means pain. Like chopping your leg off hurts but if you've got gang-green and are going to die, it's just going to hurt. I mean having a baby hurts it doesn't make it bad or wrong it just hurts.

Interview Template Question Twelve

Time: 52 minutes 16 seconds

Interviewer: How would you describe your general condition when you feel you're working really well? What are you like?

Steven: Ah, do you mean how am I? Happy, encouraged, contributing, buoyant, energised, in the flow, learning, giving are those the sorts of words you meant, how am I?

Interviewer: If that's how you are.

Steven: Is that what you mean, not what am I doing?

Interviewer: It's not activity focused, it's about you and your make-up.

Interviewer: [5.12.1] **Valued, feeling valued, my relationships are good, strong, effective with other people, I can see that they're motivated as well moving forwards, they have self worth in the team, they have a sense of security, what was the question again Nick?**

Interviewer: What's your general condition when you're working well?

Steven: [5.12.2] **Contentedness, looking forwards, those three words that I have used before, I know who I am, I am a bit more certain about who I am and where my value is I know, that I belong in the group with the people and culture I am in and I know that I am going forwards, I'm not just stagnating or going backwards or energy is just flowing from me. So that's how I am, a strong sense of direction, a strong sense of identity and a strong sense of team or collective belonging.**

Interviewer: So what are you like mentally, what are you mentally like at those times, some of the words you used...

Steven: I don't know how to describe that.

Interviewer: Ok.

Steven: I don't think. [5.12.3] **Challenged, learning a lot, changing, more conscious, more aware.**

Interviewer: Ok.

Steven: I don't really know what it means, what are you like mentally.

Interviewer: No, that's ok.

Interview Template Question Thirteen

Time: 54 minutes 34 seconds

Interviewer: Do different design activities require you to function mentally in different ways?

Steven: Yes, ha ha.

Interviewer: How so.

Steven: Do you mean what are the different ones and what are the different ways in which you function?

Interviewer: Yes, what would be the top three or most prevalent? There are four questions I would love to get in and I am conscious that your time is elapsing.

Steven: The aspects of design are solving the problem now, that's the technical unravelling of the problem, using techniques to unravel a problem, what was the question again?

Interviewer: Different design activities require different mental functioning...

Steven: Ok, so [5.13.1] **really intense trying to unravel a problem about something that is but isn't right, how do you make it better, so literally designing a, talking to the guy with a suitcase about how do I get the handles to flick out**

and all the bits and compartments to, doing the jigsaw has a completely different problem solving, mechanic mentally than thinking about what the future might be for peoples' creativity and trying to understand them and getting a notion of what the people, what the cultural values and world are in order that we can then design things for it, so a bigger brush stroke picture requires a different mind and attitude, mindset and attitude to imagine that rather than doing the jigsaw. That's two massive levels of the spectrum and designing and planning the project plan and running out a team and building what the time scales are and the financial constraints, where are the people coming from, what the competencies and capabilities are and mashing them all up together and saying well that will enable the jigsaw to be do over a long period but it doesn't set the direction or solve the bit the where the next bit for here, but it sort of something in between I suppose if there were a liniar path a there probably isn't about making a big stragegic plan to enable the battle to be won

Time: 56 minutes 49 seconds

Interviewer: That's great thank you. Do you think that through being involved in design you experience the world differently to other people?

Steven: Yep.

Interviewer: How so?

Steven: [5.13.2] **Because design is a connected discipline, it's a connector, it's a unifier, it's a planner and it responds to the full human being, I know that lots of other disciplines say they do that but because I am not one of them I can't, I don't know, that's how I see it, because we have to be able to speak in the three languages.**

Interviewer: Do you think, or have you observed that as a consequence of that you do look at the world differently to other people and experience it differently?

Steven: [5.13.3] **I think so but only because other people tell me so, Wendy McEye, say that you see the world differently to anyone I know you see the world**

completely differently, you're always going one level of abstraction out from the question we ask to one behind the question, you still produce the thing as a result of it but it now refers to a bigger issue a bigger context, it's context driven rather than problem driven but I don't know how to put it in words you would have to ask other people. In Bruce Sterling's book *Shaping Things* he describes how designers are as opposed to how others are from his point of view.

Time: 58 minutes 10 seconds

Interviewer: And my final question is, what do you think imagination is, it refers back to what you were saying before about where do ideas come from, what do you feel imagination is?

Steven: Only in reference to something else, [5.13.4] **research is understanding what is, imagination is making propositions about what could be.**

Interviewer: How does somebody do that?

Steven: Ahh, that's another question, [5.13.5] **by breaking the bond of what is, by breaking the strings of what is.**

Interviewer: How could someone possible be constrained by that?

Steven: Most people believe that you are driven by your experience, everything responds to your experience, I happen to think that's bollocks, people think they are because Freud told them they were, but I do believe in revelation and revelation is not based upon experience it is revealed externally, some people even call that intuition but I believe that intuition is what comes out of you instinctively from inside your being and revelation is what comes from outside your being and, I don't how to describe what that is but I just know principally they have got to be different, it must be different and I will do everything to prove that it is different but I don't know how to prove it, because we are subject to our instincts our intuition, so how to get yourself out of yourself other than choosing to believe it's true which I do, but I can not prove it because it's a free choice thing and proof has nothing to do with free choice. When things are proven you then have no choice, you become subject to the truth so it's not

a choice, if it were a choice you could prove it and you can only choice from things you can't prove. No one chooses things that are plainly wrong unless they're driven by some other mechanism. So I can't prove, what was you question again?

Interviewer: Imagination

Steven: No a later one.

Interviewer: Why are people constrained by their experience?

Steven: Because [5.13.6] **they believe that their experience drives everything and because they choose to believe that they then only think back to the past and extrapolate from there rather than thinking from the future inwards about what could be or what might be rather than even what should be and they're so focused upon extrapolation as a principle for development rather than taking what scientists call utopian normalisms or normaltive propositions and working back because they don't relate to experience and we have been told that you can only think forwards by, based upon the stuff behind you. And that might just not be true.**

Interviewer That's wonderful, thank you very much for your time Steven. It's been a pleasure I just wish there were more time.

End of the interview

1.6 – Tim Brown

Interviewer: Nick Spencer

Interviewee: Tim Brown

Date: Thursday the 31st of March 2006

Location: Centre for Design Research, Newcastle

Time: 0947hrs

Interview Template Question One

Time: 00 minutes 09 seconds

Interviewer: What is design?

Tim: Oh god, what a question, what's design? Design is, umm I don't know, I mean there are so many definitions for it. At some level it's simply the, [6.1.1] **it's a form of problem solving that relies on the synthesis of insights, if you will, patters that create holistic, unexpected holistic concepts which you make tangible in some way and that those tangible things have an impact on some people. It's as a friend of mine calls it, it's a form of integrative thinking.**

Time: 01 minutes 00 seconds

Interviewer: So, that do you think insights are?

Tim: They can come from many different directions, and if you come to my talk today I will talk a little bit about it but, [6.1.2] **the creative process at some level is about creating patterns out of things, the points that make up those patterns are made out of single or often many insights.** [6.1.3] **Those insights might come from the world in other words how people do things, what you see in the world how people behave, they might come from technology and the way physically the world happens, or they might come from other systems and processes like business and how business works or how society works or how government systems work or whatever kind of process you might be trying to solve.** [6.1.4] **Those insights can come from any or all of those things and one tries to create patterns from those that have some sort of meaning.**

Time: 02 minutes 07 seconds

Interviewer: So, in seeing those patterns and relationships and points of contact is there anything an individual can do to help create the conditions that help bring forth insights?

Tim: One is not work as an individual [6.1.5] **I really do believe that the kinds of design problems that we are tackling today are far to complex for individuals to tackle on their own. So the notion of the lonely sole designer staring at their drawing board is just completely irrelevant today, so I mean everything we do is team based and there are multiple reasons for that. One is that teams can see a**

lot more insights at once than individuals can, secondly it means you can have people from different backgrounds with different points of view about the world and therefore you have a much richer set of insights. So one thing is work in a team an inter-disciplinary team. Second is [6.1.6] **make as many of, as much of the insight gathering visual because one of the differences between designers and everybody else is that we do use a visual process of synthesis, we don't use a literal process of synthesis or a mathematical process of synthesis we use a visual process of synthesis we see visual patterns** and they can be visual patterns about how people do things in which case you need to record how people do things in photographs and from video or whatever so, you want to make as much of that insight visual and so in our practice we, every project has a space a project room and that room will be covered in pictures of people we have gone out and observed, frameworks and diagrams about how things work, of pieces of technology or whatever it is that we might be interested in or exploring within that project. So in my opinion you need to turn as much of the insight in to something visual.

Interview Template Question two

Time: 03 minutes 58 seconds

Interviewer: What do you believe design is for, what is the point of it?

Tim: [6.2.1] **It solves problems that people don't, yeah it solves problems, creates things in the world that didn't exist before.**

Time: 04 minutes 10 seconds

Interviewer: Who benefits from design, does everybody?

Tim: No not necessarily but [6.2.2] **the point of design is to benefit somebody other than the designer, it's not design if you're only benefiting yourself as a designer like art or some other creative process or artistic expression, so if you can't measure some tangible impact on others through the process you're carrying out then you're not designing but that doesn't mean to say that, it would be utopian to imagine that every design outcome was beneficial to everybody that's unlikely to be the case, design is often a condition of trade off's.**

Time: 05 minutes 00 seconds

Interviewer: Ok, so in what sense are people disadvantaged through design?

Tim: Well I think, I mean it depends, you can look at it from any different perspectives obviously you make decisions about who might have access to the end result of design because of its cost let's say, so you could argue that if you make something intentionally expensive because you want to make it luxurious then you are disadvantaging those that can't afford it, you might chose to make certain design outcomes only accessible to certain people, certain parts of the world, you may chose to deliver design through certain technologies that are only accessible to certain kinds of people I mean there are all kinds of choices that get made consciously or unconsciously. [6.2.3] **I don't think designers are ever thinking much, in general think about this, it's not often you have to make a hard choice it's an inherent part of the process, I don't think, designers don't often step back and say who am I negatively impacting although the more we get to deal with issues of things like sustainability for instance the more we are tending to think about '*How are we negatively impacting the whole planet from what we do*', which is a question that gets asked by designers more these days than perhaps it used to be.**

Time: 06 minutes 13 seconds

Interviewer: What do you see as the future direction for the profession? How do you think it will change?

Tim: I think it depends where you are in the world are who you're talking to, my personal opinion is that [6.2.4] **design's shifting from being a fairly narrow process that was really dedicated to the creation of artefacts, of products, communications to being a process that can apply to a much broader set of problems and indeed always has been it's just designers weren't trained to tackle all those problems** and so you can find design thinking, which is what I talk about, I distinguish between designers and, or design and design thinking. [6.2.5] **Design thinking is a mental process, a way of approaching problem solving, which can honestly be applied by anybody who knows how to do it how to use the tools just like scientific method can be applied by anybody, you don't need to be a professional scientist to apply scientific method. So design thinking, [6.2.6] you can uncover**

design thinking going on all over the place scientists often use design thinking, technologists often use design thinking, business people use design thinking, so I think one of the places that the profession is changing is, certainly for use anyway, is that we find ourselves being asked to tackle problems that are not classical design problems, or at least not in our sense of classical design problems but to apply design thinking to tackle problems and I think, I think that's a shift going on in our part of the design profession and I don't know if its happening to everybody and [6.2.7] a lot of designers resist it understandable because you loose some of the craft of design when you do that, I mean if you're trying to design a business strategy for a company which you can do as a design problem and the outcome might be certain kinds of design outcomes, like films, exhibitions or whatever but, so there is some design craft involved but it isn't the same necessarily as designing a product so I think that some designers are understandable resistant to it and others find that quite an exciting prospect. So [6.2.8] I think essentially the design profession seems to be diversifying a lot, seems to be getting richer and broader, you have companies who you would never have thought of as being design companies before beginning to look awfully like design companies, companies like IBM for instance, which looks awfully like a design company today or at least large chunks of it do and yet you would never have thought of IBM being a design company before that.

Interview Template Question Three

Time: 08 minutes 40 seconds

Interviewer: What are your motivations within the profession, what motivates you these days?

Tim: [6.3.1] I'm motivated by two things primarily, one to have the most interesting and useful impact on the world through the work we get to do with our clients and that's impact either beneficial impact to our clients and/or beneficial impact to the world in general and the second thing and the second thing is just as important as the first thing and that's to make the company that I run as fascinating, enjoyable, rewarding a place to be creative, so that's mostly what drives me.

Interviewer: What does fascinating mean to you?

Tim: Something that's intellectually engaging, something that is intellectually satisfying, something that is emotionally satisfying so it's not just a place where people come to get paid or come to do projects, it's a place where they actually get something out of being at the place, particularly get something out of the people they get to work with and where the notion of work content and work process and work environment are all kind of the same thing, that's exciting, that attracts incredibly talented people you know all the things you can measure, qualitative things you can measure one's success in terms of an organisation.

Time 10 minutes 10 seconds

Interviewer: How do you feel your motivation has changed throughout your career?

Tim: That's pretty easy. [6.3.2] **I left the design school, not here I left here and then went to the royal college just being interested in creating beautiful objects and it made me more interested in creating new kinds of beautiful objects, not even so much beat... and I got over that pretty fast and then got interested in just the seductiveness of interesting design problems particularly ones that were complex, we did a lot of work in new technology, in Japan and things like that and how new technology was changing peoples, then, this is before the internet and lots of things like that, thinking about how technology was going to change peoples' lives and how we were going to deal with it and that was something that I enjoyed for a long time and then I started running businesses and so my motivation was how do you run a business, what's it like to run a business and now I have been running businesses for quite a long time and so it's almost gone full circle again, it's no longer about designing beautiful objects but it is about doing projects, having an output of what we do as an organisation [that's] able to be judged in some way and be valuable.**

Interview Template Question Four

Time: 11 minutes 38 seconds

Interviewer: So, how do you judge the quality of a design project?

Tim: [6.4.1] **It's obviously pretty multi-faceted and it's also something that's got a time factor to it, you can judge certain things about a design project the minute you've done it or even while it's going on, you can judge other things about it 6 months or a year after you've finished and the products are out in the market place and some things you can't judge for ten years, you don't know whether you've created a classic product, something that's going to have a lasting impact until years after you've done it.** I mean only done, can, we look back at some of the things we did 10/15 years ago and say '*Yeah they did actually have a lasting impact on the world*' and other things we thought were going to didn't and so you have to take a long view as well as a short view and [6.4.2] **we look at everything from, have we impacted the culture of the company we were working with, have we changed the way they do things, have we brought new ideas into the world that are really relevant, did we get the dam thing out into the market, did we actually make a difference, was it fun was it creatively stimulating, are we proud of it, I mean there are lots of different points at looking at it.**

Interview Template Question Five

Time: 12 minutes 40 seconds

Interviewer: Are they the same factors you would use to judge your own personal involvement, when you look back and think what was the quality of my involvement?

Tim: I would like to think that was the case, [6.5.1] **sometimes it's hard to do that in the mad rush of everyday, but I like to think that one can step back and say, did I make a difference.** I mean [6.5.2] **I take a lot of pleasure from what we do as an organisation and I think that's the big shift that anyone makes, when they go from being an individual to being part of an organisation and then being a steward of that organisation is that you go from being really focused upon your own efforts to being the efforts of everybody so I get to be very proud of what 450 people do and that's enormously rewarding and to some degree, but then it's very easy not to step back, it's very easy to forget to look at what you do as an individual but we have a pretty considered process for doing that within our organisation we're quite careful that everyone gets to think about that and think about what they're doing and how they're doing it.**

Interviewer: So in putting that process in place you obviously see the benefit in doing that but can you describe what you feel that is?

Tim: What our process for people, well we just try to be careful about the way, we have quite a careful review process, we, people get to pick a bunch of people within the organisation that they want to have, to talk to them about what they have been doing that year and how it's been going and we have a bunch of, you know we just have a whole bunch of, I mean it's nothing particularly groundbreaking, earth shatteringly innovative but we are quite careful to ensure that everybody has an opportunity to get lots of feedback and we're building mechanisms to help people judge how much impact they have on their colleagues as well as on the outside world, how much influence they have and value their contribution through that. And also we try, we're in California you know if you've got a company in California you tend to be more thoughtful about some of these things but we're trying, I don't know, it's got to the point where it's very hard for me to look at it in a very objective way now, I don't actually know how different we are but I do know that we've got an organisation where peoples' work and life are fairly intertwined and where, were proud that we've got half a dozen semi-pro athletes in the company and we've got lots of other things going on that aren't to do with the clients paying us for projects, which is just as important to us.

Interview Template Question Seven

Time: 15 minutes 44 seconds

Interviewer: How would you describe or define a good designer?

Tim: We talk about, [6.7.1] **I talk about this notion of people being 'T' shaped and what I mean by that is that they have two qualities to them one is that they have a quality of depth an ability to do something and that might classically have been the craft of a particular design discipline, graphic design, industrial design, architecture but in our organisation that might include, that might be the craft of linguistics or psychology or mechanical engineering or electrical engineering, we have many many different disciplines, so they have that depth but what allows them to work in a design environment, so that's the depth the vertical strut of the 'T', the breadth the horizontal stroke of the 'T' is really what we**

describe as empathy, so to be a great designer you have to be able to have empathy for others you have to be able to, you have to be able to get outside of your own view of the world, your own existence and have an enthusiasm and desire to understand the world from other peoples' perspective, so that applies in two different ways when your being a designer one is that's how you get to be empathic to the people that you're trying to solve problems for so that's tremendously important but just as importantly is how you get to be empathic and interested in all those different disciplines that contribute to the process so we don't hire people very often into IDEO who are just purely solo practitioners because they just don't integrate into our culture very well. So we are looking for people who might be a very talented industrial designer but is kind of excited about going out and doing human factors research or is really interested in what engineering can do and so we look for people with that kind of empathy.

Interviewer: So, do you think that's a quality that people either have or don't or is it something you can work on?

Tim: Like anything else you can certainly work on it, there are some people who simply don't have an ability to be that way and one can recognise those and there are plenty of designers that way just like there are plenty of other people but most people have some kind of level or capability in it and you can extend it you can put them in an environment which is challenging and exciting and where they've got a lot of very smart people around them who have other abilities and you sort of get opened out by that process and so it's something that you can encourage but if there's no sensibility towards it, and we're pretty good at spotting who may or may not have those kinds of sensibilities.

Time: 18 minutes 04 seconds

Interviewer: Are there any other qualities that you would consider important?

Tim: Well there's, [6.7.2] **there's a desire to produce tangibility that's incredibly important in design, a desire to make things of one form and another and again you can see that in people even people who aren't classically trained designers but a desire to actually turn something from an abstract idea into some kind of**

reality, if you, if that isn't your natural way of thinking and working then you're going to have a hard time being a designer, but I think everything else is very specific skills, people may or may not have the ability to draw and all that stuff is all useful but not necessarily essential.

Interview Template Question Eight

Time: 18 minutes 43 seconds

Interviewer: How do you develop your practice or the way that you work?

Tim: Me personally, it's a little hard, I'm not that good, I don't actually work that much on design projects anymore, so a lot of what I do is, a lot of my development is about how do I do a better job of communicating what we do as company which is, I feel more like a politician than a designer to be honest, but the, [6.8.1] **I guess most of what engages me these days is just how many places one can see the possibilities for design and exploring that and exploring how design can... you know I spent some time in January working with some folks on some ADIS vaccines and stuff and trying to figure out how design can make a difference to what they're doing, those, so it's really more about where applications for design thinking and how do we start to explore those spaces with design thinking and that's intellectually challenging and exciting.** I think in terms of, I mean part of, it's staying connected to the design process apart from actually when you get to a certain point if you're not in it in a real way and so [6.8.2] **trying to remain connected in some way is a pretty big challenge but you know whether it's getting involved in design crits or trying to think of everything as a design problem and trying to turn everything into a prototype and staying somewhat connected that way.**

Time: 20 minutes 25 seconds

Interviewer: Is that something you feel you carry with you 24/7?

Tim: What being a designer?

Interviewer: Yeah that looking at...

Tim: Yeah, I think you do, you can't help it, if that's your personality, if that's what you are. [6.8.3] **I don't think I am as extreme as some, there are some people who never seem to be able to get out of the mind set of being a designer, I don't think I am quite that extreme but yeah I think you do because it's your view point on life and I don't think you get to step in and out of that and to be honest I think that's what's rewarding about being a designer and I think that's why a lot of people love being a designer, you can go, you can actually go through life always being a designer and it works out pretty well, I think there are certain modes, lots of people in the world who can't possible go through their life being what they do professionally, it's either too depressing or it's too, it just doesn't work, you know. I think you can go through life being a teacher all the time, I think you can go through life being a designer all the time and I think it's actually a pretty positive thing and so that's one of the rewarding things about being a designer, I think you can put yourself in this design mind if you will, a design frame of mind and operate that way and it works.**

Interview Template Question Twelve

Time: 21 minutes 39 seconds

Interviewer: What, how would you describe your general condition when you feel you're working really well?

Tim: [6.12.1] **Not having just got off an over night flight, not having not slept in a couple of days that's for sure. It's funny I think for me my best ideas flow, my best dialogues happen when, life has to have a kind of rhythm to it and I don't mean a steady rhythm but you can't, being constantly relaxed doesn't work, being constantly under pressure doesn't work, it's about the changes. Often I will find myself decompressing on a flight home after a week away doing lots of speeches and stuff and a whole bunch of ideas will suddenly [sounds of a bomb], you know, pour out. It's about... you do actually have to treat yourself reasonably well you do actually have to be reasonable healthy I do think that design requires a fit mind.**

Interviewer: What does that mean?

Tim: It means [6.12.2] you actually have to look after yourself and that... and I believe that's true of everybody but I think there's something about the creative process that requires your brain to work pretty hard and it has to be open to certain things and so you can't be scared and frightened, if you're scared and frightened you can't design, you can't be in too much of a hurry all of the time or you can't design and you kind of need to be fit, mentally fit and physically fit I mean I honestly think that designers who are, and I see it in a lot of our folks, we have a particularly and again because we're a Californian based company we have a slightly more intense view of that and I'm not a particularly good example of that, there are lots of people in my organisation who are insanely fit human beings and I think it makes a difference so there is something in being in a good state of mind and state of body that does help you be creative. I mean you see it in people who have been working too hard for too long they just stop having good ideas.

Interview Template Question Nine

Time: 23 minutes 49 seconds

Interviewer: What are the difficulties that designers encounter, what are the typical...

Tim: There are so many just like there are with anything, I mean often [6.9.1] design problems are incredible complex and it's hard to see those patterns sometimes and that's frustrating and hard work, you know designers often have to deal with working on design problems that they may not be able to see how to make them, they're not always the problems they want to work on so that can be frustrating. You know [6.9.2] design is a political process as well as a creative process in others words you have to convince other people that your ideas are good ideas in order to get them implemented because designers rarely have the ability to actually execute everything and that can be frustrating because often you work with people who aren't empathic to what you do or understand what you do or are confused or frightened by what you do, threatened by what you do and so that whole political process can be very frustrating a lot of designers aren't great communicators, they rely on their work to do the communication for them and that isn't always enough and so that can be pretty difficult, that can be difficult for designers. [6.9.3] There's a sort of optimism that designers

have to have, you have to be optimistic that you can solve the problem and the rest of the world doesn't always have that optimism and that can be frustrating, there's a scepticism and pessimism about the world that many people have that many designers can find frustrating and it's one of the reasons that I love working in America as opposed to here to be honest with you, in general you find more people who are optimistic there than you do here, it's a gross over generalisation but in general it's largely true that you come across more people who are optimistic and more willing to do things and take risks than you would find here. On the flip side you find people who are a lot less sophisticated about what they're doing

Interview Template Question Ten

Time: 25 minutes 35 seconds

Interviewer: So what are the design situations that put you in greatest turmoil?

Tim: Normally it's [6.10.1] **conflict, I mean I find that, that may just be me from a personality stand point that I don't like dealing with conflict and so if you've got a situation where you've got people who are really unhappy with an outcome or aren't happy with the process and yet you know the outcome is right, outcome or... and then it can get pretty uncomfortable and it's not something I enjoy very much.**

Interviewer: I mean how do you deal with that?

Tim: You've just got to, [6.10.2] **I didn't used to be able to deal with it at all, I used to be terrible, but now I've got used to it to the point where I've just found mechanisms for dealing with it, I've learnt to literally treat the conflict as a design situation. There's a set of issues here and there's a possible set of outcomes, I've just got to figure out which one the right one is and try and work it through rather than deal with it on an emotional level, as soon as you do it on an emotional level it just becomes incredibly stressful.**

Interview Template Question Nine (cont.)

Time: 26 minutes 33 seconds

Interviewer: You mentioned in talking about the difficulties of designers that sometimes it can be difficult when you're working on a project that's not the one you want to work on, how do you think people, or how would you deal with that?

Tim: Well the best designers, and this is a horribly Californian term but you will just have to bear with me, which is [6.9.4] **great designers know how to make every project cool rather than expecting a project to make them cool and you find a lot of young designers particularly who are just not, or people just don't think in the right way they want to pick projects that make them cool** in other words, that's a cool company, I want to work at Nike, I want to work for Apple and that's just not realistic and it turns out that they're the worst design problems to be tackling anyway but there are other reasons for that but really great designers, even people like Philip Stark he always used to talk about, I always look for the things that people haven't thought of solving yet, the dull things, because and so that's the way to solve that issue, [6.9.5] **if you're creative you will find a creative take on any project within reason and so the best designers are able to do that.**

Interview Template Question Thirteen

Time: 28 minutes 10 seconds

Interviewer: Do different design activities require you to function mentally in different ways?

Tim: Yeah, [6.13.1] **there's certainly, the difference, the two extremes between complex, things that are complex intellectually verses things that are complex executionally so for instance if you are trying to create a new strategy for a company that might include brands and products and experiences it's very complicated with lots of business issues to deal with, the way you tackle that problem verses let's say creating a new building, which is very complex executionally so that requires a lot of planning so executional complexity requires a lot of planning where as intellectual complexity requires the opposite of planning, it requires openness and space an ability to look at something from lots of different directions and let the points of view emerge and you can't plan those very easily and so they're quite different experiences and there are some designers who can cross over between those two and do them both well but many**

that can't, many that, for instance I am very good at the first, at the strategic intellectual kind of complex I'm not very good at the executionally complex stuff great engineers for instance, really good on the executionally complex stuff so we found, it's one of the challenges in our culture is holding a company together with both of those people in it, because they don't always understand each other very well it can be quite tricky and I think one of the reasons we have been relatively successful is that we've got a reasonable size population of people who are good at both so they help glue the whole thing together, but that's certainly the most dramatic example that certainly I see every day of the differences.

Interview Template Question Eleven

Time: 30 minutes 05 seconds

Interviewer: What role do you feel your emotions in your work?

Tim: I mean at some level, they're important at multiple levels [6.11.1] **at one level if you're not feeling and again it's back to this optimism thing, if you're not feeling good about what you're doing then you don't do good work so that's one thing, at lot of what we do is reach people emotionally through the design that we do and therefore you have got to open your emotions up to what it is you're doing, you can't just rationally. I think where design can gets itself into trouble sometimes is when it's overly rational and a lot of the best designers I know just kind of intuit what the right emotional stance around something is they can't tell you why it is and you can't often talk about emotions that way they just do, they just know it and so yeah emotions are pretty important, if you're feeling pissed off it's hard to do something that's joyful.**

Interviewer: So what would you consider there skilful use if you like, it's great when you're feeling good and the emotions are positive and that can be incredible beneficial to the project and the people you're working with, but sometimes you do feel a little bit down, how would you describe, in situations where possible what you have isn't necessarily what you want what do you do there?

Tim: [6.11.2] **It's certainly helpful when you're working in teams, because teams can help you deal with that, I mean your colleagues can, if everyone is conscious**

that that is part of the issue of working in a team and we try to teach people about some of that stuff and actually educate them a little bit emotionally about what it means for teams to go through projects, there are various points of optimism and points of pessimism never mind whatever kind of personal stuff you want to lay on over the top of that, we could be a lot more sophisticated about that than we are but we try, so working in teams certainly helps and the more you feel confident the more you, we work very hard a IDEO to make our process explicit so the more you do that the more people know they have tools at hand the less they have to rely on their emotions purely, [6.11.3] designers that are completely intuitive about their process they just do what feels right the whole time completely rely on their emotions being in the right place but if you've got a tool kit, a set of methods and approaches that you know you can apply then they help kind of level that, whatever those emotional differences might be to some degree, moderate them in some way.

Interview Template Question Fourteen

Time: 33 minutes 04 seconds

Interviewer: Are there any key moments during your career where you have had a change in understanding that's affected the way you think about design or the way that you do design?

Tim: Yeah certainly there have been lots of them. There was the time after I left college and started working for the guy, I was working with Bill Moggridge who suddenly introduced me to this much broader world of where design had application, the first time I started working with a really good psychologist who introduced me to really understanding people and how you feel about people, that was a big change.

Interviewer: How did that change...

Tim: Well [6.14.1] **it made me realise how bad I was at understanding how other people lived their lives and that if I got better at it then I would come up with better design solutions and I saw how much skill there was in, you didn't just go up to them and ask them you looked really hard in this very skilful process so**

that was important. The first time I had to fire somebody that was pretty important, that's a pretty life changing moment for anybody.

[Tim had to leave]

Interviewer: That concludes the interview thank you for your time.

Tim: I hope it was useful.

End of the interview

1.7 – John Thackara

Based upon Thackara's background and domain of practice it was felt that some of the Interview Template Questions would not be successfully engaged with. Additionally, the timeframe for the interview was 30 minutes as opposed 60 minutes, which had been judged as ideal. For these reasons the questions asked in the interview were modified from the Interview Template. The questions that were asked in the interview with Thackara are still considered as an attempt to test the conjectures presented in Chapter 3. The questions below have been labelled to indicate which of the Interview Template questions were being to addressed.

Interviewer: Nick Spencer

Interviewee: John Thackara

Date: Friday 7th April 2006

Location: The Robert Stephenson Centre, Newcastle

Time: 1013hrs

Interview Template Question One

Time: 00 minutes 09 seconds

Interviewer: What is design?

John: I don't have one of my own, definition, and I've spent 25 years evading that question in the sense that [7.1.1] **design is either everything or a lot of different things depending on the context and the situation** and in my book, if you've seen

that [7.1.2] **I use Herb Simon's definition which is something to do with design being the patterning of human activities toward a desired end.** So that doesn't take one a great deal further but [7.1.3] **it's about intentionality and trying to change things in a planned way.**

Time: 00 minutes 45 seconds

Interviewer: In that sense is that an activity everybody is involved with and how does that stack up against a profession of designers?

John: Well, that's an interesting question that lots of people are thinking about in many different contexts I think that [7.1.4] **my position is that a lot of things in this world are designed by people who either don't call themselves designers or don't know that they're designing but are doing it anyway and that ranges from people who, you know, create motorway systems to people who arrange flowers in a flower shop or who cut your body open with a scalpel. There are all sorts of ways that people do things towards a desired end and plan it in advance and organise their actions in a methodical manner, which is arguable a form of design.** What was the question I have forgotten?

Interviewer: It was revolving around the profession of design...

John: Right, so the history of the last 200 years or so, or thereabouts, has been that people have tried to do that stuff called intentional activity in an increasingly organised way and various groups of people have codified their knowledge about process and how to do things in particular contexts and have called themselves designers and in broad respects until the last 20 or 30 years those professions have been attached to technologies of implementation such as, graphic designers basically design things that the paper industry and printing industry delivers, product designers cause the manufacturing world to make things, architectural designers make buildings and so on, so they have been part of this rapid and profound process of industrialisation which has required and therefore has got those people but they are in my judgement one part of a much bigger world of designers and therefore to me I spent as I said 25 years trying to explain to people that chair designers or graphic designers are one part of a bigger picture.

Interview Template Question Two

Time: 03 minutes 05 seconds

Interviewer: So what do you think is the purpose of design, why do we do it, what's it for?

John: [7.2.1] **I think people rearrange reality to survive and the notions of survival have changed throughout the years, it's what human beings do, it's what they do.**

Interviewer: So, in rearranging reality to survive, how are we doing that currently, how is that practiced, how is that exercised as you see it where we are now?

John: Well you then have to brake the story in to bits I mean, if this wasn't an interview I would ask you what you think, I mean [7.2.2] **there are people who take reality to automatically include the growth of technology for example and a lot of people who consider that their job as designers is to apply technology to everyday activities whether that's sitting in a chair or cooking food or moving around. It is regarded by many people that it is self evident that what you do is put technology into that activity, which I don't agree with that proposal but it's what the process of a technological society is about, other people assume that it's their right and duty as a designer to remove human beings from activities and replace them with machines and this is something that rather a large proportion of the companies in the world and the business schools and the banks and everybody, that's what they regard as self evident and again I, that's not my opinion, my opinion is that human beings are more interesting and more important than machines and should remain so, so it's not as if there is a single answer to the story it depends upon where you're coming from.**

Time: 04 minutes 49 seconds

Interviewer: Who do you think, in the position where current design activities are, who are the beneficiaries of those processes?

John: Well I mean at the moment that's what I mean I don't have a single answer to any of these questions, I mean [7.2.3] **there is no thing as one location for design activities, there are multiple locations, the aerospace industry, the movement and mobility industry, the food industry, the learning industry they all have people who are at different levels responding to need and or desires by rearranging things which are taking design actions and that applies to people who restructure design industries as well as to people who restructure things in the window of their shop.**

Interviewer: That being the case then do you think there should be a change in emphasis or a change in direction for the way we go about rearranging our reality?

John: Well it's not that I propose to change the direction with another direction directed by me rather than by somebody else. I think [7.24] **what I propose to designers of all kinds is that one does it much more critically and with much more hesitation and with much more questioning rather than making assumptions that things are bad now and could be better if only I designed them differently but this applies equally to all, to most, aspects of daily life that you know, it's politics as much as design that question. So [7.2.5] I think that there are some designers, quite a lot of designers that are insufficiently curious or critical about what they are doing, on the other hand they have a job and a mortgage and have to pay off their credit card bills, like along with many other people they don't make life complicated they just do their job. There are other people who regard themselves as having the right to change the world without having to take account of what other people might want and then there is a third group that is critical about the way that things are going and wishes to be part of a debate about alternatives and that's the group that I am in.**

Interview Template Question Seven

Time: 07 minutes 11 seconds

Interviewer: Ok, what do you think are the important qualities for people to have within that group?

John: In the third group?

Interviewer: Yes, your group.

John: I think that two or three things really [7.7.1] **I think that one needs to have a kind of built in question mark when looking at things about, ‘*Is this as things have to be, is this as things should be*’ and so in other words it’s another word for a critical and questioning approach to things.** [7.7.2] **I think that it’s important that people who are not satisfied and are not comfortable with things should seek out other people, not per say people who agree with them, but just try and connect with people from different backgrounds and experiences because that way you get a different perspective on things and then you can see if you’re misunderstanding things or just getting multiple points of view and part of that is to do with listening, and here’s me talking into your tape recorder, in general [7.7.3] being open to what other people are saying and not rushing around trying to find evidence for what you already think, that is in general critical practice but that applies to writers or musicians or doctors or anybody else but it’s the same territory and I think finally and it might sound a contradiction is that [7.7.4] one should try and do things rather than just talk about them and engage in some sort of practice or intervention in a very tentative and not to blundering way because the world has far too many people talking about abstractions and increasing the barriers between the idea and the experience. So as far as I have any control over my situations I try to get involved in projects where one goes and partakes in activities in the real world and then learn from that.**

Time: 09 minutes 05 seconds

Interviewer: Ok, do you think that the projects, or the sort of projects that you’re trying to get involved with or that sort of third group would endeavour to be part of, do you think they’re different in, in which ways, how are they different to what the other groups are doing?

John: Just that they exist, and that [7.7.5] **they don’t just per say just do what the client says or they don’t just say ‘*Yes of course it’s ok to put technology into it*’ or ‘*Of course it’s ok to replace human beings with machines*’ it’s an attitude and approach that by definition is different to the other two groups and by no means**

am I just describing people who are professional designers. I'm talking about the part of the culture that says '*We don't just have to be the victims of change we can also have some control over it in terms of what we think is important*'. So I can't, [7.7.6] I don't think I can generalise, if I think about who I hang about with in my life in general it's, they're a pretty mixed bunch so I don't think there is a profile. I wish there was because then I could go and find some more but in general we, I have found myself attracted to people around projects and questions which is what we have in common rather than that person being like me. So in Doors of Perception for example it's a pretty mixed group but we are united by an interest in a series of issues and questions that don't get discussed or dealt with elsewhere. Which is what teachers say give people an interesting question and they will do amazing things so, not about being a kind of person

Interview Template Question Three

Time: 10 minutes 54 seconds

Interviewer: What attracts those people to those questions do you think?

John: Well if I knew the answer to that I would be a politician or maybe I am a politician I mean, I think people are attracted to things or they are repelled from other things, so [7.3.1] I just observe in my life and lots of other people do to that the kind of everyday life that we have arrived at now has all sorts of good things and all sorts of bad things as well. So qualities that are missing or people that are distressed by the experience of just being alive.

Interviewer: Could you go into depth a little bit more about what you perceive as those good things or those bad things in life?

John: In depth, I have never been good on depth I'm sure, I think that [7.3.2] the things that I bang on about in my writing and my lectures and my projects is that people are more important than machines and things as a proposition and that we should perhaps as designers broadly interpret it should spend more attention on enabling people to do things better for each other and for themselves than looking for tools and gadgets and infrastructures.

Interview Template Question Eight

Time: 12 minutes 11 seconds

Interviewer: How do you think we can go about that?

John: Well it's partly to do with two or three aspects [7.8.1] **one is to be critical of the assumption that is rather wide spread that it's fine to replace people with technology or to automate activities, that's just something that's in, that people just don't question nearly enough** and [7.8.2] **secondly is to, there are certain practical problems like business models or the taxation system you know it is, if you want to hire more people it's very hard to make your business work if it's a business, if you have people rather than machines, you may offer a crap experience if it's machines rather than human beings but at least on paper you can make a business proposition for it, so there's that kind of side of it the institutional, the way we arrange our economy is a problem,** which by the way is not a problem if you're unemployed because you're outside that economy and that's where people are much more prominent than machines, so poor people have less gadgets than rich people generally speaking so perhaps they're not poorer in every respect. And then [7.8.3] **I would suppose that the third area would be, ok fine nice people should do things but what skills and qualities should people develop for them to be able to do that and that's where I sort of run out of a sort of deep answer but it's to do with people should be able to learn and react from each other on a constant basis so I errm don't know how they do that, how do we all do that we just grow up, grow old, learn stuff.**

Interview Template Question Four

Time 13 minutes 54 seconds

Interviewer: In doing things in a, or with a slower pace and more questioning mind something that is more sensitive to the consequences of what we do, how do we create projects that test that out, how do you embed that approach in the world we live?

John: With difficulty, but I don't know if you remember [7.4.1] **in the DIEC project but we did actually formally try without success in two or three iterations in different institutions to introduce the notion of a consequences lab or a con-lab**

where one could say well we ought to think more about the possible consequences but unless you formally build it into the process and say on stage three is a consideration of consequences good and bad unless you do that generally speaking it doesn't happen people might have private doubts about things or feel uneasy but in general businesses do not pay people to have doubts they pay people to design me that thing so therefore you have to consciously build that into your activities as a required step in the same way that you have to actually budget time to think about things before you go any further I mean you could budget it i.e., at this point we should stop for a month do nothing and think about it, unfortunately this does not always receive a very positive response from the client particularly if they are expected to pay for that month but that I think is without being trite, that is almost what we have to do is to formally build it into the system which of course arguable happens a bit, enlightened companies give people a couple of weeks a year to go and do their own thing, to go and chill out and decompress, it's not very common but it happens and as your whole story presumably will be about the fact that there are traditions of thought and being where that is absolutely essential which doesn't at the moment happen in the design and innovation business but I think it's a very good proposition.

Interviewer: Ok, thank you that's a very interesting answer I certainly remember, not the birth bit, I remember when the consequences lab was mentioned, I was at the DIEC workshop week down at Hebbon Bridge where they were doing some of the activities to kick start that project and it's very fascinating now to see how some of that is developing I guess.

John: Well there in that pod there and it is not one thing, so it has kind of morphed into, now that's a good example of maybe how by accident there was a few years of thought built into the creation of DIEC because our proposal with that document was give us 10 million quid and we'll build it tomorrow, they said no way hosay partly because the management changed of One North East and they said do some projects and try out some of the propositions that you're making, not including the consequences lab I may add, but you know individual projects that's what they're doing with Robin Mackie and that is I think a rather wise approach it may not have been done for entirely consciously for good reasons but the result is that there will be

a three to five year gap between the publication of that book and some full institutional thing so and that actually several people have told me that what happens all the time is that things, people drag their feet constantly and if you're a freelancer waiting for a contract or to get paid is a complete drag but in general being a bit slow about things isn't all a bad thing and there is a man called Eves something in France who writes books about the slow state, do you know him?

Interviewer: Yes

John: and all that stuff and there are reasons why all that stuff and there are reasons why institutions move slowly indeed the longest lasting ones, I mean I had this amazing encounter once when in the days when I was keen about e-learning and I must say are long gone and I went to see the vice chancellor of Linden University to say well you must be more up to speed on this new stuff mister vice chancellor and he said young man, and I was about 50 even then, my university is 920 years old and we didn't get to be 920 years old by running around after the latest fashion to which there is no answer because it's true and substitute Linden University for the Catholic church I do actually know there's a man called Ganubay internet advisor to the Vatican and he sits in Calcutta in a mission having seminars about what the internet might or might not mean you know for the church but with a very clear requirement understood by everybody that this is not an urgent problem it's an interesting thing for them to think about at some point I mean they go faster to get the Pope vatified than they do to have an internet strategy I don't know weather they have an internet website to this day I haven't checked but he was saying yeah no we should indeed think about it it's interesting not we must immediately have a website tomorrow otherwise we will be left behind by the protestants you know no way. And I don't know what the Buddhist's do, does Buddhism as a system of thought have websites I don't know, the Dali Lama is incredibly switched on to stuff and constantly appearing at these dot com events but I don't know.

Interviewer: I know that different ones do different things, I know that the monastery that I go to does have a website...

John: Is it a rich one, is it, did they pay John Paulson millions of pounds to...

Interviewer: I don't know how well off it is, I think one of the monks had a background in IT before he joined and put it together for them.

Interview Template Question Nine:

Time: 20 minutes 07 seconds

Interviewer: What role do you feel the designer's ego plays in their work, either to a positive or a detrimental consequence?

John: Well I don't know if I would use the word ego. I am sure ego is a reasonable place holder you have to be, designers who do anything that is not self made but requires marshalling resources like money and marketing and production and partners of various kinds that is a very messy and complicated activity and you need rather a lot of will power and self belief to do it at all let alone to do it a lot through time and we have observed that for example famous architects do have big egos I don't know whether that is technically the correct description but they're pretty dam single minded and frankly if they weren't single minded they wouldn't get these buildings built and they wouldn't be who they are there are however invisible brilliant but relatively low profile people who also get big things done but you often don't see them so it's a slightly dangerous territory it's confusing because it's 50% yes of course ego is very important because otherwise they wouldn't do it but then there are other people who either don't, they probably have big ego's but they don't have a big need for visibility but also get things done. Whether there are people of profound humility that get big complicated things done I don't know, that's why you should write this and tell me in your PhD.

Interviewer: And I guess is it important to do big complicated things?

John: Ahrr well that's another question. And [7.9.1] **maybe if one had a bit more self-critical reflection one would say well does the world need this thing which frankly if you asked that of any design project the pragmatic answer would be no the world doesn't need it particularly but then it is indeed true that designers become designers because they want to make and do things, it's a bit hard to tell them not to do it** although I do think the service designers are beginning of the

possibility of a designer without designing, or without consuming materials or changing the physical reality that is where we're going, I don't think we've got there yet, but I think an increasing number of people see that as a possibility and I also I feel industrial designers in particular who tend to be less critical in the general sense they're the ones that are best at it once they turn their attention to services for example they're very good at it unlike graphic designers who in general just care what things look like so, to exaggerate a bit but not a lot.

Interviewer: Ok, I guess part of the process of being involved in these projects is having some sort of sense of imagined future, or imagining possibilities and then creating a plan toward those, I would quite like to ask you about the role of those imagined futures and the danger of fantasy and I guess being deluded about...

John: I have just bought two amazing books on this subject, which I haven't read Russell Jackabey on imagined utopias and Fred Jameson has written something about science fiction anyway, it's that big. And they've just come out so you should read those and if you mail me and remind me I will give you the reference. I think it's a very important question and we're, I think we're going to a little event next year in DOTT as I discovered there's something called the Durham literary festival who aid, we want to do a day on design a so we had a short discussion and well what are the kind of fantasies that motivate designers to design things and I used the concept of science fiction verses social fiction as a kind of proposition, I don't really, I haven't really like everything else thought it through very much but I think it's an interesting subject. It's more than an interesting subject at the moment it's really very visibly true that people are designing things that come from those sorts of science fantasy I mean I literally as an image as a thought but they make them physically look like that, we see it coming out. Sorry what was the question?

Interviewer: I was just saying that being able to imagine possibilities for the future is an important quality but I guess not getting to caught up in that, how do we judge when things are a fantasy...

John: Well I think that is a very important question, I mean [7.9.2] **we in DOTT say that's it's about how do we want to live, that's our sort of motto and I have been**

in the so called futures business most people call me and I am happy to be called a future gazer or something but as the years go by I realise that that's really probably not a very good thing to do or to be because it means that you don't look at the present so I do think there's a whole proposition called reflecting critically about what things are like here and now is probably a more valuable thing to do than the dream about how things can be different but that is like to put a whole question mark over the whole the entire Western system of economy and thought so it's a kind of big change but I increasingly meet people who indeed are doing that but that's a good example of people who by definition very quiet because they're thinking about things and they don't in general stand up and say I've seen the light because their quizzical...

Interviewer: Follow me.

John: Exactly. It's very dangerous and weather it's more dangerous to have a crack pot vision than it is to be completely uncritical of where things lead I don't know, I think they're both dangerous and I think there's a lot of both around, there's large numbers of people who say well I'm just an engineer, or I'm just a business man or I'm just a this plus what difference does one person make as you know that's very common and I just to tell them well you're a bad person you have to be good and now I don't do that any more I say well have you thought about whether we could do it differently or do we like we way it's arranged now and that's slightly more, not a much more humble question but a bit better.

Interview Template Question Four (cont.)

Time: 18 minutes 43 seconds

Interviewer: Ok, I've got three different statements I guess I would be interested to hear which you would put most emphasis on and what you believe their relationship is to one another.

John: Is this a yes or no answer or...

Interviewer: I suspect it will become descriptive, we'll see how it goes. Changing our end goals. Changing our approach. Changing the way we look at things. In which

way would you order those in importance and what do you feel is their relationship to one another?

John: What's the middle one?

Interviewer: Changes to our approach.

John: Right.

Interviewer: Changes to our end goals. Changes to the way we look at things.

John: Right well I would think that if, [7.4.2] **changing the way we look at things is what I had used to think was the number one which is why my company is called Doors of Perception, and our conferences are about changing the way that we look at whatever. The trouble is that that puts too much emphasis on perception of individual judgement rather than the collective reflection on things so if that could be included into changes of approach I would say first approach second perception and third, what was the other...**

Interviewer: End goals.

John: **End goals are the, I don't think are very important, so I think one need to be aware of consequences and critical about any certainties that one has about what those consequences maybe, have doubts about it and I think that's best done in a collective and collaborative way rather than is this the right thing to do and making a decision, so I think that when people act a behave socially it's much better. So that's the new approach doing, critically reflecting upon possibilities with others in an enlightened way.**

Interview Template Question Nine (cont.)

Time: 29 minutes 01 second

Interviewer: What do you think are, not the benefits to doing things collaboratively I think other people have spoken about that a lot, what are the challenges I guess to an individual involved in that sort of collaborative venture? How's it difficult?

John: (A), [7.9.3] it's messy and complicated and if you just do what you want it's simpler a lot of people who are described as being grand and focused are, just do things and don't worry about it so a sense in which the negative side of that anything collaborative requires continuous negotiation with people about everything, the other possible problem is that you never actually come to a conclusion, never actually do anything which increasingly in my opinion is not such a bad thing but a lot of people regard action and change as a sign of success of a successful life yes he changed a lot of things, so those two things but I don't think, I don't know weather I think there are lots of skills and learnings that would make it easier to do that, I'm sure it's because I haven't had them that I think that. Techniques and states of mind and, I'm not convinced. I think that you need institutional frameworks that make it possible for people to work collaboratively rather than individually acquired skills and attitudes but as I said this is possible because I am not an enlighten person that I think that I get a bit freaked out if there's too much process around or too much, yeah too much about looking for shared feelings and understandings in that sense. I think that one needs concrete questions that some wise person creates that and that triggers the collaboration not some kind of shared state of mind, that's because I don't have a shared state of mind that's why I say that.

Interviewer: Even if there is such a thing indeed.

Interviewer: What do you think wisdom is then?

John: I definitely have no idea, I refuse to answer that.

Interviewer: Right fair enough.

John: And I assume it's just one of those things you find as they lower you into the grave, my mother says on her tomb stone it will say organised at last or wise at last. I would be absolutely terrified at being wise, wouldn't you? At the level of rhetoric I am sure that if you think you're wise or know what it is that by definition means that you're not and that all the people that I have observed who appear to have insight into

things are pretty much perpetually confused so I don't know, I don't know what wisdom is. Being unsure of things for sure.

Interviewer: Lovely, well I think that pretty much concludes...

John: Has it got your PhD done and dusted?

End of the interview

1.8 – Sean Blair

Interviewer: Nick Spencer

Interviewee: Sean Blair

Date: Friday the 5th of May 2006

Location: Personal residence, London

Time: 1306hrs

Interview Template Question One

Time: 00 minutes 10 seconds

Interviewer: Ok then, my first question for you is, what is design?

Sean: Gosh my mind is going all over the place, I think it's a very human activity. I'm just going to talk around it a bit. Years ago I interviewed Tucker Viemeister from Smart design in New York and he put up a picture of a nude painting and his claim was that design was older than the oldest profession in the world prostitution so I am kind of struck by something about it being a very human activity. [8.1.1] **I suppose you and I have come from a particular genre and meaning making of design, you know, the Bauhaus created design education in its first form and we're going through the later stages of that. I tend to think that design, I'm almost anti the art's school trained model these days, not anti it, it just seems like such a limiting frame. Design is becoming a legitimate ubiquitous activity that all humans do. Some do it better than others, some do it more intentionally than others, so in that sense it's a creative process, might be a short answer.**

Interview Template Question Two

Time: 02 minutes 07 seconds

Interviewer: In that case what do you think its purpose is? What's it for?

Sean: Well that's, the first place my mind goes to is noticing that [8.2.1] **I think human purpose exists within, let's call it a cultural construct or probably a more accurate word, in my language, would be a worldview. So the first question is what is the prevailing worldview within which purpose is being articulated. So in a very obvious way for many people... So the purpose of design in a consumerist Western market is to help companies to compete but your question, the obvious answer to your question... The purpose of design is to make better products, to help organisations compete, all the wheels of commerce. I think the edges, the more subtle edges of what that may mean are more interesting. I'm really struck by; I mean it's a really important theme in my inquiry... The Skolimowski model, which you must have come across Mythos, Logos, Theos, Mechanos... So for me the question is, what is the purpose of design in a Mechanistic worldview or what is the purpose of design in a post-mechanos worldview and I think that the purpose of design is probably changing as different people, different groups engage more with the changing context. So I don't know if that really answers your question.**

Interviewer: Yes it does and I think it answers one of my future ones as well, so I'll jump straight to there.

Interview Template Question Two (cont.)

Time: 04 minutes 23 seconds

Interviewer: What's going to be involved realising that change from design within the Mechanos worldview to where it might be going or where you see it developing?

Sean: A couple of thoughts, as I was thinking about how my career would shape up [8.2.2] **on the homepage of my website I put participation co-creation, that's it and I felt strongly sure-up by the academic body of work by people like Skolimowski, Peter Reason who are advocating that a participatory worldview is, that beyond, or I don't think they would argue that it was beyond mechanos but it's post-mechanos so participation I feel absolutely key. It's interesting that**

stakeholder dialogue, I mean there are lots of ways that public and private sector organisations are trying to get people involved, I think a lot of that sort of stakeholder stuff is frankly bullshit and I think people know it's bullshit it isn't a proper form of participation. When an organisation has a question they don't know the answer to and they invite people to participate, like Hebdon, we didn't know the answer to '*What would a service design institute be like*', people can genuinely participate. So I think that design in the participatory worldview is part of the answer, your question was what needs to happen?

Interviewer: What's involved in realising that participation? What does it require of us?

Sean: [8.2.3] **I think it requires a sense of, there are phrases like egoless-ness that are in my mind, it requires an ability to, I'm also for some reason thinking about fear, I think people are very fearful of letting go so I don't know maybe there's something about ego, the traditional industrial design ego-centric model, '*This is my thing, celebrate it and me*' as opposed to the '*Come, join in, participate and we don't know the answer*', those two positions are scary for some people. As I get a bit older I'm 40 now [8.2.4] I'm really struck by the little child within us. I've run a workshop for a bunch of head teachers recently, not one person in that room was earning less than 60 grand a year, they're top head teachers and there was a lot of little child present, fear of getting it wrong, being seen to not know, to be foolish, so at a psycho-level maybe there's something about feeling safe and feeling secure because if you don't feel safe and secure you will probably be quiet. So it requires senses of safety and security, it requires something about an aware relationship with ego, it requires letting go of fear maybe. Another answer that came to me as you first asked the question was what might it take of us, [8.2.5] **it might take a crisis and if you believe the environmentalist message of climate change then frankly the only thing that's going to change human behaviour is a bloody great crisis and maybe even that won't, we've managed to have quite a few of those over the last few hundred years. Richard Tarnas makes an interesting [point in the] epilogue in his book, 'The Passion of the Western', have you read that book?****

Interviewer: I've not, no.

Sean: So Richard Tarnas's book is called 'The Passion of the Western Mind', and his question is why did the western worldview work out to be this way so he plots back through the great thinkers and in the epilogue of his book he says '*So I'm an environmentalist, I have environmental concern, where do we go from here?*' And the only answer I remember him offering was that what was required for a sustainable evolution of humanity was a death of the male ego, not death of mankind or man-ness but just the male ego, as it... If humanity was able to let go of that somehow we would be able to develop a more mature civilisation, I find that a provoking thought.

Interviewer: It certainly is.

Interview Template Question Five

Time: 10 minutes 50 seconds

Interviewer: How do you judge the quality of a design project?

Sean: I suppose a couple of qualifiers, do we mean an undergraduate design project, or a classic commercial product design project or what sort of project are you thinking about, or would you like me to interpret it...

Interviewer: I would quite like you to interpret it with whatever first comes to mind.

Sean: It kind of goes back to one of your earlier questions about what design is, [8.5.1] **if you think design is the kind of design that I learnt when I was at University it would be the extent to which the designer has really done their homework and their research and found out what people really need and want and what works and what doesn't work and they have come up with some elegant solutions towards that, it feels a tiny weenie bit thin.** I mean here is a beautiful ipod, which you have probably had for a year and a half or so maybe two years, it will cease to function in another year or so or another model will come out that you will find yourself attracted to but certainly you won't be using that in 10 years time and it will either sit in a box somewhere and gather dust or you'll throw it away, I mean who knows what you'll do with it, but it will probably be rubbish. So [8.5.2] **if we tried to talk about responsibility in design practice the traditional**

answer seems a bit thin because we're not really taking responsibility for the whole product life cycle. If design is more broadly interpreted in a way that I'm now imagining it, the design of services as a participatory activity, then the success criteria are very different. I think it's the extent to which there is a high order of participation and a high level of participation; the extent to which humans work well together with each other and it's amazing that we don't a lot of the time; [8.5.3] the extent to which people can communicate truthfully with each other and we're pretty poor at that too, we're scared of being honest with each other, or can't do it in ways that don't offend. So the answer to the question is very dependant upon what sort of paradigm of design we're talking about. I suppose if I were to, as I was talking I was noticing a couple of threads [8.5.4] there's probably a thread around, let's call it discovery, that's common to both sets of activities, there's probably a thread about creativity that's probably common to both. I'm thinking about the 'Spirit of Creation' model of 'Discovery, Generation, Synthesis and Enterprise', so I think that discovery and generation is really kind of common. After generation, synthesis is also kind of generic. Enterprise is a slightly dodgy word because it kind of implies commercialisation but if that word means implementation, you know beyond use, then I think there are some generic practices regardless of whichever paradigm. Just remind me of the question.

Interviewer: That's a pretty good answer, the question was how do you judge the quality of a design project.

Sean: So another answer would be the extent to which the output, yes, [8.5.5] **the extent to which the output is useful, usable, desirable, efficient, effective and the extent to which the outcome is one that humanity can live with.**

Time: 15 minutes 40 seconds

Interviewer: Well that leads to the question, what do you consider an improvement? How do you make the judgements about, when you have been through a design project or a design process whether the outcome is actually an improvement?

Sean: Yes I mean [8.5.6] **for me relationships matter a lot to me, so one way that I would judge as to whether there has been an improvement, ‘Are the relationships better or worse?’ If the human beings in the room understand each other slightly better, respect each other slightly more, have more knowledge that they might be able to do something useful with, then that’s probably a good outcome. I mean there are different kinds of outcomes [8.5.7] in a service design project an outcome might be to increase revenue and improve customer experience. I think the outcome question is very difficult I mean that is why when we conceived of the DIEC we put a consequences lab as a concept into that because we live in a very fast society on a 4.2 million year old ping pong ball and it depends when you try to look at an outcome, I think to answer the question properly is, it’s a very complex [door bell rings] could you hit pause on that.**

I mean some outcomes are really bad and then isn’t it interesting that from something really bad something really good happens. Were the local election results for labour a good outcome or a bad outcome, well if you’re Tony Blair sitting here today they’re probably a bad outcome the Tory party have had a couple of pretty weak leaders over the last while, bad outcome resulting in a new charismatic bloke some people like him some people don’t, so the outcome is, it waxes and wanes [knock at front door].

[8.5.8] **Maybe there needs to be a qualification of types of outcomes, long term environmental or human spiritual outcomes are they good or bad, if they’re quashing the human spirit or damaging people or the planet it’s probably bad, if it’s just a dent in the ego or short term pollution which is ultimately fairly harmless, so I suppose one needs to, a bit, one needs to be able to think about consequences and outcomes in some kind of hierarchy, some things are more important than others.**

Interviewer: Ok that’s a great answer thank you.

Interview Template Question Six

Time: 19 minutes 33 seconds

Interviewer: How do you judge your personal involvement within a project in that case?

Sean: How do I judge?

Interviewer: Yeah, when you look back at a project how do you know if you've done a good job?

Sean: For me, if I talk about service design projects say Newcastle Airport, we did some work on that or the NHS trust in Gateshead, success, [8.6.1] **how I would judge my own success or failure I think is related to the extent to which people came willingly on the journey and enjoyed it**, strangely enough on both of those projects a guy from Durham University was commissioned to evaluate independently whether the service design projects were good, bad or indifferent. The commissioning body wanted to know not from the consultants perspective, the consultants are bound to say it was great, wanted to know an independent view of whether they were good or bad and this guy came up to me right at the end and said he was very impressed with my participative leadership skills. Now I had never hear that phrase before and I rather liked it because [8.6.2] **it seems to me that in complex design projects the extent to which one is a good or bad participative leader will make a qualitative difference to the way the other humans will engage on the project and the kind of work that they will do with the quality of engagement that they are afforded, so a sincere and honest and clear of allowing people to engage probably creates those places of safety and groups can do extraordinary things together** which feels great at the time and somehow. I was in a really funny meeting at the department for education yesterday and they were bitching and biting and snapping at each other in a really embarrassing juvenile way and at one point in the conversation we moved to a completely different level, I challenged this very academically bright woman who came back, she's quite aggressive too, and she came back and I folded immediately and her boss said very gentle *'Hey Sean what do you mean by that'*, and then there was a magical moment, there was a moment, it was lovely, I would say and this will sound like a slightly hippy way of putting it but it was almost as though during that moment we were celebrating the best parts of being a human whereas only five minutes earlier we were children. I spoke to the artist Richard Wentworth about coming to give a talk at a thing I'm doing and he said you know, we were talking about time he said humans have a unique ability for reverie. If we are the only

species able to revere then suddenly it becomes quite an important thing to do and we don't seem to teach that in schools and we're more interested in going faster, so maybe, and I am not the old man of 65 but I'm the middle aged man of 40, as one gets a little older it does become, what's really important here, what's really important there.

Interview Template Question Four

Interviewer: And what is important?

Sean: Ha ha... [8.4.1] **I don't know, to feel really human and really alive...**

Interviewer: What does that mean?

Sean: What do you mean, what does that mean, what does feeling really human and really alive mean?

Interviewer: Yes, I mean is that going shopping down Knightsbridge, what's that?

Sean: I can only, I've had a really interesting last couple of days and I've just been buzzing around doing stuff, meeting people, and I've felt great about it I could quite happily spend much more of my working life doing much more, doing the kind of stuff I have been doing and that's a satisfying feeling, it's not always like that but I suppose but, you know... This is interesting, I'm quite into inquiring in action in the moment and I've, when you challenged me, what does that mean, that's the first time that I began to feel like I was going to far or unsafe and I suppose the most kind of pausing, '*Oh gosh*', I just noticed that so bringing attention into the moment, what does it mean, I mean it very quickly gets into existential questions about why are we here and what's it all for. I was reading a book this morning in bed the last pages of a book called *The Villain* which is an autobiography of Don Woollen's whose a very famous climber, anyway he died obviously at the end of the book of old age, age 52, and it was a really kind of poignant thing you know we don't know if we have another go around the block after this one so it does become quite important to lead life as fully and experience life as fully as one is able to.

Interviewer: What does it mean to live life fully, does that mean going and getting loads and loads of experiences, doing everything, is that what it means to live life fully?

Sean: No I don't think so, I don't think so.

Interviewer: What does it means then?

Sean: The way that I am meaning it... I suppose [8.4.2] **the way I am meaning it is to be as present to life with its ups and its downs, not necessarily to be ok with it. I suppose my experience over the last couple of days when I have been ok with it is to take time in the moment to enjoy it and know that you're enjoying it, I think that is part of living fully. So there's an awareness I think of what's been happening, the ability to reflect and either enjoy or not enjoy so reflection in the moment maybe.**

Interviewer: That's lovely thank you.

Interview Template Question Seven

Time: 28 minutes 27 seconds

Interviewer: My next question I am going to change, but it was what are the important qualities for a designer to have. Now I am going to change that to and I think you have answered the first part, what are the qualities of a design facilitator or a leader of participation, that's the bit I think you have answered a little, and the second part of the question is, what are the important qualities of a participant?

Sean: I think and I have been reflecting on this question myself even just this last week. I ran a workshop this week and I think it was better than the one that when before because I owned the problem more than I did before, so [8.7.1] **one quality is the extent to which the participative design leader/facilitator really owns and understands the problem it's my problem and I want us to fix it. [8.7.2] I think clarity is a very important quality in order that people are clear on what's happening, what objective are we working towards, how are we doing it, do we have sufficient time and resource to be able to do it, so, therefore, another**

quality is to be able to lead people through a process and at the same time gain their trust that the process will work or be fleet of foot enough to be able to change the process if it's not working. So lets just reflect, [8.7.3] **the qualities are clarity, ownership and something like trust, confidence is something around that field, I think some qualities around let's call it enthusiasm or being properly positive...** any other qualities.

Interviewer: Does that mean that there are ways of being positive that are less desirable?

Sean: Yeah, what I meant when I said properly positive was, the counter point to what I mean is an American '*Hey buddy, rah, rah*'.

Interviewer: All guns blazing.

Sean: Yeah, just kind of false-o happy. Maybe a better way of putting it is belief, so there's a question of belief, [8.7.4] **belief that there's a better answer, that the work is worth doing, that something good will come out of it.** You know there have been experiments rhetorically where, you know, if teachers, if kids believe that they can do stuff and if they don't believe then they won't so maybe that's a better way of focusing what I mean my being positive, I think those are some of the qualities of the participative leader. [8.7.5] **For the participant critically a willingness to be there, Openspace Technology, the guy that wrote that book Harrison Owen says that voluntary self-selection is mandatory, you can't get people into a room and process them they have to want to be there, so the extent to which they want to be there, the extent to which they are free to leave if they don't want to be there. Other qualities of a participant, I think the extent to which they feel safe and secure, to resonant with that again, the extent to which they are clear, the extent to which they are open and flexible as opposed to coming to something with a fixed view and selling it, another nice thought from Harrison Owen is be prepared to be surprised so a sort of openness, I, they are some of the most important.**

Interview Template Question Eight

Time: 34 minutes 15 seconds

Interviewer: This might seem like a strange question within your particular circumstance but I'll ask it anyway, how do you develop your practice?

Sean: I don't think it's a strange question, similar things to what we have said so far, so there's a bit of theoretical underpinning to my practice I am re-reading Skillomophski at the moment to [8.8.1] **the extent to which I am confident that my practice has a good theoretical underpinning** and I learn more about that. [8.8.2] **My MSc was based upon reflective research paradigm so I have an inquiring mind.** How else do I develop my practice, I suppose I assemble it from things I come across, I stumbled across Openspace quite some years ago and have played with that in lots of different ways with some success and sometimes without success and I assemble... It's funny I was running a workshop for Business Link Tyne & Wear a while back and we were talking about the cultural blockers that would stop this particular group of stakeholders getting the result that they needed and we had been using grid cards and wall charts all day and this was the first time that I asked people to work in silence to reflect upon the cultural blockers, work in silence, work alone, and then I asked them to come up to the wall chart and stick them on the wall chart which is the first time they had been asked to do that. Now I think most of that was unconscious, I hadn't planned it, and the woman who was penultimate said to me, she was a real smart ass, *'Sean I've got a question'*, I said *'Yep, sure'*, she said *'Is it meant to be like alcoholics anonymous'*, I said, did she say it that way, it was something like that, I said *'Yes, that's precisely how it's meant to be'* I said *'I really want you to own your blockers so thank you for your question that's exactly what it's meant to be like'*, she was like right ok then, she shared her challenge, but it was good because it was like a little ritual, having a more mindful moment where people could reflect without the chatter of having to look good or you know any of that stuff and the act of them writing and walking up, posting and announcing had more meaning and symbolism than giving it to me and me sticking it up. So I think that says something about. I have been criticised in the past of not being very aware of my own practice and I think that's true I don't have a conscious awareness of some of the things that I do I just do them. So [8.8.3] **I guess another way I try to develop my practice is to be more reflective, 'Ooh that was interesting I wonder why I did that?'**

Interviewer: That leads very well to my next question, you mentioned a minute ago about stumbling across things, like the Openspace technology, when you stumble across something how do you know you have found something of value?

Sean: Probably because I have seen it, if we make a metaphor with a tool kit, someone has picked up a hammer and used it, they hit something and the nail went in. It's like, ok that works, so I've seen, I've just seen it work and then through my own practice again at this last workshop I used silence quite often actually, it was amazing actually because people were so busy and there was so much to do in the morning in the afternoon when we gave them five minutes and I sat down just on the stage there at the front, it wasn't a big stage it was just a tiny winy one, it's strange I haven't really reflected upon, I almost energetically, it's almost as if I were doing my own meditation wanting them, wanting to evoke the spirit of possibility and mindfulness and wanting them to, to just do the task well and try to hold, that's an interesting statement, I say to the woman the next day, my client, I said, '*I'm a bit tired today*' and she said, '*Well holding that kind of space is really tiring*' and there is something of just the energetic quality of presence and being that holds or not depending upon how well it's done, I don't know. How do I know they work, I think I've seen them do something in the past.

Interview Template Question Nine

Time 40 minutes 04 seconds

Interviewer: What are the difficulties that designer encounter?

Sean: Are we talking about classically trained art school designers the likes of which...

Interviewer: No we can talk about exactly where you are at the moment.

Sean: Well I'll just try to imagine two answers the first is the use of the word designer as we understand it, [8.9.1] **someone who has been to arts school and learnt to be a designer, what are the problems they have, for some reason my mind is thinking about young designers I think some of the problems I first had when I first**

started is that I didn't really understand the complexities of production and I think maybe that's a generic answer. It's a kind of, it's a kind of complex world and sometimes we think we know the answers and maybe another problem is to be a good designer you have let's call it a degree of vision, you see a thing and think you can make a better thing and you've envisioned that thing and you've gone through a process and I think that can be a problem because either you don't have the skills to bring the vision to life because that's quite a hard thing to do or you're misunderstood or your visions wrong or you're a head of the time. I mean service design is an interesting proposition it's, the world's not quite ready for it yet or we haven't found a way of articulating it yet in a way that the world has really bought it yet but that wouldn't have been unfamiliar in the early days of the Bauhaus I mean I think that's a familiar experience for many designers the extent to which they have the technical competency be it in product or humans to propose something clearly enough that other people understand it and wish for it to, that can be a problem. What was the question?

Interviewer: What are the difficulties that designers encounter?

Sean: A slightly more trite answer, [8.9.2] well design isn't taken seriously by quite a few people, the perception of what design is, for many people engineering is a serious discipline done by men with beards and rocket scientists and design can be a fluffy thing you know funny shaped chairs and websites that people can't use so a problem can be what the perception of what design is and maybe there's something about [8.9.3] the extent to which some of the more complex factors in the world in the world of commerce, is it any surprise that accountants end up at the top of companies, no it's not, I mean money is the language of business and if you can't speak that language you can't play that game so we might have invested so heavily in acquiring one language skill set that we're not fluent and competent and capable in other languages, human languages, money languages so that can be a problem to.

Interview Template Question Ten

Time: 44 minutes 29 seconds

Interviewer: What are the situations that put you in greatest turmoil?

Sean: Your questions are so wonderfully open. Professionally. Greatest turmoil. Can I just see that I understand the word turmoil properly, turmoil being when I feel anxious, ill at ease and troubled, ok I am pretty clear in that case. Me personally the things that have put me personally, [8.10.1] **the things that have put me in the most turmoil over the last few years is when relationships don't work. I feel very troubled by breakdowns of trust and disrespect and yeah, humans hurting each other either because they wish to or they are ignorant of the consequences of their actions I mean yeah I get really troubled.** If you look at my career I left Octo after six years because I was a bit bored and had been given a great opportunity at the Design Council so that wasn't an exit based upon turmoil. I left the Design Council after four years because I had seen something more important and couldn't, I was ok with the chief exec, I wasn't that anxious about it, the exit from NoWhere became very tumultuous and turmoil was part of the reason I left, I had got into conflict with one of the other directors and that turmoil, that was very difficult for me and I have had my moments with my colleagues from Spirit of Creation and I wasn't prepared to live with that so that was another reason I moved on, so bad relationships.

Interviewer: When is it that you feel most dissatisfied then, is it in those situations or are there other things that lead you to feel dissatisfaction?

Sean: Dissatisfaction, [8.10.1] **sometimes I make myself feel dissatisfied because I feel I should be cleverer than I am sometimes I, dissatisfaction is an interesting choice of word, when do I feel dissatisfied, something about recognition there's a relationship between recognition and satisfaction or dissatisfaction. I have recently been strongly and warmly recognised for things I have done well and therefore I feel very satisfied and there are other times when I have done things I think exceptionally well and not be recognised for those or valued for those and I have felt dissatisfied and in turmoil, I think that is an important one**

Interview Template Question Thirteen

Time: 48 minutes 19 seconds

Interviewer: Do the different sorts of activities you undertake require you to function in mentally different ways?

Sean: Yes I think so.

Interviewer: How so?

Sean: Well, let's just think about this so that I am clear, mentally different ways that's mental different modes, so for instance [8.13.1] **in this dialogue my mental mode is that my brain is going quite quickly I suppose but quite deeply too so it's a mode about really present, really grounded thinking, I notice that it's quarter to two and that time has gone very quickly. So that's one mode and for me personally it's a absolutely delightful mode. In a meeting where, the one I described yesterday, the mode is very different to that it's much faster and more fleeting, trying to calculate the dynamics of the people in the room to try to know when to lighten through humour or challenge through conflict or join in or avoid or, so that's another mental mode. I have a boring mental mode where I just have repetitive tasks to do; I've been doing one of those this morning. I suppose there is an exciting and creative mental mode. Sometimes and I noticed this first when I was at the Design Council, one day I was writing a speech for a conference I was talking at and as I was typing the speech I was literally falling asleep, *'Oh god this is going to be awful my own speech that I am writing is sending me to sleep'* and I literally just tore it up and started again and the way I stayed awake was to be fun and provocative and play with it and sometimes that is another mental mode.**

Interviewer: Just out of interest was the speech well received?

Sean: Yeah, I think they always were. I mean I used to have a lot of fun, I mean who knows whether they were, people seemed to be awake and attentive so I guess that worked.

Nick: Do you think that through being involved in design it has changed the way you experience the world in general?

Sean: I think that my answer is yes. I'm not very sure how I mean I have been in design pretty deeply for more than 20 years now so inevitably it has shaped how I see the world. If you were going to, ok Sean how, [8.13.2] **I think that I see possibility** and as I get, as I mature I am struck by the leadership maturity framework by Bill Turbutt, if you haven't come across [it] it's very interesting. It's clear that there are different levels of leadership maturity and as I understand the higher levels of leadership maturity those people seem to work at the level of framework or context so it's interesting how my own career has moved, Jonathon Ive and I went to, we were in the same year, he has done that and very successfully, so my own world has become less and less tangible as I try to think about the design of frameworks themselves. I'm giving a talk at a conference next week where time is the subject and rather than talk about timetabling one of my ways of engaging that is to say, *'Well what if we were to create a timetable based upon a Myron Zworykin calendar or why have we chosen a Gagarin time construct because there are other time constructs available and if you were to create a new construct what would that be'*, so that's probably one way that it's affected me.

Interview Template Question Fourteen

Time: 53 minutes 25 seconds

Interviewer: Just thinking about the way you experience the world or the way that you experience, are there any key moments during your career where your ideas, understanding, has changed that has lead you to change the way you go about things...

Sean: Yes, I am certain Skillimophski's model was a huge one for me that was a profound moment of insight to know that humans create worldviews. Worldviews are the bigger social and cultural container by which we see, understand and experience the world and that that changes wow, that changes so what's the next one his mind went quickly, so that was a big idea and I suppose there are lots of other, ideas are the things that have done it for me, I mean that is such a big idea as far as I am concerned. Or shall we say that is an idea I have chosen to heartily believe in and adopt I mean there are lots and lots of other ideas, I mean I believe in technology as an idea, I believe in some aspect of field theory and on I could go but that has been the biggest one.

Interview Template Question Three

Time: 55 minutes 16 seconds

Interviewer: That's great thank you and my final question is, what's your key challenge?

Sean: Your questions are so open aren't they, what's my key challenge, professionally?

Interviewer: Yes

Sean: That's a great question... possible key challenges... well top of head thoughts maybe around [8.3.1] **believing in myself enough that a path I want to pursue is right, errm key challenge, what is my key professional challenge, it's funny in some ways I am less ambitious than I used to be. There have been times in life when I have been really quite ambitious. One of the nice things about being at this stage and age in life is that I don't have to look too hard to find interesting things to do, they seem to come and find me, I lead quite a comfortable professional existence, so... I am just interested that I am not coming up with a Richard Branson scale, my big challenge is to, and I think I currently feel ok with that. Another important thing about answering that question is I have gone through a very challenging patch in my personal life and my little boy who is two he and my ex-girl friend moved out a year ago and last year was a shit year so I have been incredible challenged personally and I haven't really had the capacity for really huge sort of professional challenge some people might argue that to set up a new company in the middle of that but for me strangely enough it was easier than carrying on with some people I wasn't really comfortable with so the key challenge for me at the moment is, this is a Koan like answer, my key challenge is to find my key challenge or to let my key challenge find me I have always had some kind of belief that I was here to do something important and useful and maybe that's ego who knows and I certainly don't feel that I have achieved that yet, so my key challenge feels more like a personal challenge is to navigate my life the personal part of my life into enough of a sort of a calm**

waters that if I wanted to go off in some more professional adventures I can, I think that is my key challenge.

Interviewer: Lovely that you very much Sean that ends the interview.

Sean: Well that's great, I really enjoyed your questions.

End of the interview

APPENDIX B - Curriculum Vitae

Curriculum Vitae for the study's eight participants

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2.1 – Kevin McCullagh

Kevin McCullagh is founding director of Plan, a product strategy consultancy based in London.

His background spans design, marketing, engineering and academia; and includes a previous position as Director of Foresight at Seymour Powell, the product design consultancy. He has consulted to design, marketing and corporate strategy departments of brands including:

Ford, HP, Lenovo, Nokia, Mars, Orange, Samsung, Shell, Unilever and Yamaha.

He writes, speaks and broadcasts on: design, business, technology and society.

Professional experience

- **Plan**, founding director (2004 – present)
- **Seymour Powell**, Director of Foresight (1999 – 2004)
- **BM Marketing**, Design Director (1994 – 1998)
- **The Centre for Industrial Design**, Designer (1991 – 1993)
- **University of Teesside**, Part-time Lecturer (1993 – 1996)
- **University of Northumbria**, Part-time Lecturer (1992 – 1995)
- **Rolls Royce Aero Engine Ltd**, Pre-University apprentice (1984 – 1985)

Education

- **University of Northumbria**, Postgraduate research (1991-1993)
- **Newcastle Polytechnic**, BA (Hons) Design for Industry, First class with commendation, 1986-1991
- **Leeds University**, First year pass Mechanical Engineering Bsc.1985-1986

Publications

- **‘Beware the backlash’**, Core77, Jan 2007
- **‘Hug a Hummer’**, Blueprint, Jan 2007
- **‘Strategy for the Real World’**, Design Management Review, Fall 2006
- **‘Island Mentality’**, Blueprint, August 2006

- **'Creative economics'**, Spiked-online.com, April 2006
- **'Creative accounting'**, New Design, April 2006
- **'SonyEricsson W800 strikes the right chord'**, Mobile Handset Analyst, 23 May 2005
- **'Inspired'**, Design Week, 7 April, 2005
- **'Blink'** book review, Blueprint, May 2005
- **'Nike's new sensible shoes'**, Blueprint, April 2005
- **'Faking it'**, Blueprint, December, 2004
- **'Nokia's fall is Samsung's gain'**, Global Mobile, 5 May 2004
- **'Situating technological change within social and business dynamics'**, Design Management Journal, Vol. 14 Spring 2003
- **'Together in electric dreams'**, New Design, Jan/Feb 2001
- **'Brand aid'**, New Design, Jan/Feb 2001
- **'Ergowhatics?'**, Caffeine, Issue 7 Jan/Feb 1999
- **'3D Computer Modelling in Industrial Design'**, Co-Design, 1996
- **'Power from the Past'**, Design Review Issue 13 Volume 4, 1994

Many of these articles can be found at www.plan.bz/views

Speaking and broadcasting

Kevin has been appointed conference director of 'Pathfinders', a conference on the future

of design that will take place in November 2007. Confirmed speakers include: Jonathan Ive, Tim Brown, Richard Seymour and John Thackara.

- **'What does British Design mean?'**, Script debate, Design Museum, 19 June 2006
- **'Surprise and anticipation'**, panellist on BBC Radio 4 'Shop talk', 5 April 2005
- **'What is design?'** panellist on BBC Radio 3 Nightwaves: Undercurrents, chaired by Philip Dodd [Other panellists included Sir Christopher Frayling and Kenneth Grange]
- **Future vision: Future cities**, London School of Economics, 6 December 2003
- **'Innovate through foresight'**, Brand Development Seminars, China-British Business Council, Shanghai and Beijing, 16 & 18 March 2004
- **'East meets west on new terms'**, World Design Forum, Seoul, 2 December 2003
- **'Future thinking' – Keynote**, Technology Teachers Association conference Glasgow, 2 November 2002
- **'Trend spotting?'**, D-Futures, London, 3 December 2002
- **'Bandwidth, constraints and discipline'**, Exploring Doors, Design Museum, 20 June 2002
- **'Trends, Brands & Product Strategy'**, British Design im Schiffbau, Zurich, 13 November 2001 [Speakers included: Tyler Brule and Richard Seymour]
- **'Techno-hype and future babble'**, a paper given at Crosscurrent conference, Exeter, 13 March 1999
- **'How can theory assist practice?'**, paper given at Multi-viewpoint, Shaping the Human-Computer Interface, University of Northumbria, 2 July 1998

- **'Towards a design context rooted in practice as well as theory'**, paper given at Contextual Design - Design in Context, European Academy of Design Conference, Stockholm 23-25 April 1997
- **'The pervasive Internet'**, concluding paper given at Designing the Internet, Design Agenda 2 day conference, London 5/6 July 1996.
[Speakers included: Tim Brown, James Woudhuysen, Peter Girardi & Andrew Zolli]
- The following research seminars papers were presented at a post-graduate weekend,
Oslo school of Architecture, 8-9 March 1996
 - Visions of the future** - the roots of contemporary attitudes to the future
 - Industry and work at the turn of the millennium**
 - Computer Aided Industrial Design** - reflections and propositions
- **'Design futures'**, Foundation lecture for Future Context component of the MA Design Research course, Central St Martins - The London Institute, 27 November 1995
- **'Japanese industrial design: from occupation to globalisation'**, paper given at Beyond Fear & Envy: demystifying Japanese design, Design Agenda conference, Design Museum, 15 July 1995. [Speakers included: Richard Seymour, James Woudhuysen]
- **'The moral maze in the age of uncertainty'**, a paper on Ethics and Design, BA Design for Industry annual course conference, Department of Design, University of Northumbria 22 March 1995. [Speakers included: Nigel Whiteley]
- **'Green design and fuzzy logic'**, Paper at Design and the Environment-Developing a Policy Approach for Industrial Designers, BA Design for Industry annual course conference, Department of Design, University of Northumbria 10 March 1994
[Conference chair - James Woudhuysen, The Henley Centre for Forecasting, Keynote address - Peter Harper, Alternative Technology Centre]
- **'Technophobia and fears of the future'** - The Institute of Design's Wednesday Lecture, University of Teesside, 6 October 1993

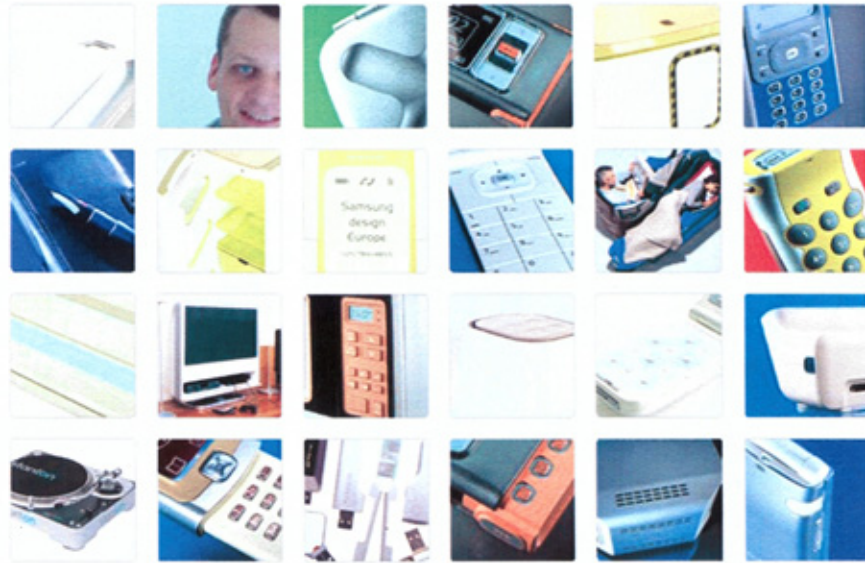
Kevin McCullagh
Director
Plan Strategic Ltd

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M +44 (0)7973 908 436
kevin@plan.bz
www.plan.bz

508 Union Wharf,
23 Wenlock Rd,
London, N1 7TD,
United Kingdom

2.2 – Mark Delaney

mark delaney curriculum vitae



personal details

contact 11 Quintin Avenue, Wimbledon, London SW20 8LD, UK
+44 (0)20 8544 9510 (home)
+44 (0)7779 348617 (mobile)
mark.delaney@btinternet.com

personal details Date of Birth 26.2.68
Nationality British
Marital Status Married with 3 children

education 1987 - 1991
University of Northumbria at Newcastle
BA (Hons) Design for Industry
2.1 Honours

references	Kevin McCullagh	Clive Grinyer
	Plan	Director of Design, Explocentre
	175-185 Grays Inn Road	France Telecom
	London	29 rue des Sablons
	UK	Paris 16ème
	WC1X 8UE	France
	+44(0)797 3908436	+44(0)797 6124389
	kevin@plan-design.co.uk	cgrinyer.ext@orange-ftgroup.com

career to date



Electrolux Furniture (Designer)
February 1994 – August 1994

Samsung Design Centre (Designer)
August 1994 – April 1996

Fitch London (Freelance Designer)
April 1996 – September 1996

Tangerine (Senior Designer)
September 1996 – September 2000

Samsung Design Europe (Manager)
September 2000 to February 2004

Independent Designer
February 2004 to November 2004

Plan (Director)
November 2004 to present

In my career to date I have been lucky enough to work for companies ranging from multinational corporations (Electrolux, Samsung), large multi-disciplinary design consultants (Fitch London), and small product specific consultancies (Tangerine and Plan).

During this time I have gathered a wide range of professional experience. At Electrolux the design centre was located within the floor-care factory. Here I worked hand-in-hand with the engineers and production managers right through the product creation and manufacturing process. At Samsung initially the design centre was located in Samsung's European marketing centre. Here I worked alongside the marketing and sales teams.

My consultancy experience at Fitch and Tangerine allowed me to understand more about design from a business perspective, learning about working for a wide range of clients, and to understand how to better communicate design issues to customers with a different levels of design experience.

During the seven years I worked with Samsung went from a middleweight product designer recruited to design white goods for the European market, to the manager of their European design centre responsible for a staff of twelve designers.

In February 2004, due to a shift in the role of the European design centre I left Samsung and worked independently for nine months before co-founding Plan a product consultancy focusing upon the design of total product experiences - the total consumer encounter with the product.



Plan Strategic Ltd. Nov 2004 - present

During my time as design manager of Samsung it became clear that the best design solutions were obtained through a combination of well planned research, strategic thinking, thorough analysis and a design approach that considered more than simply the aesthetics of the product.

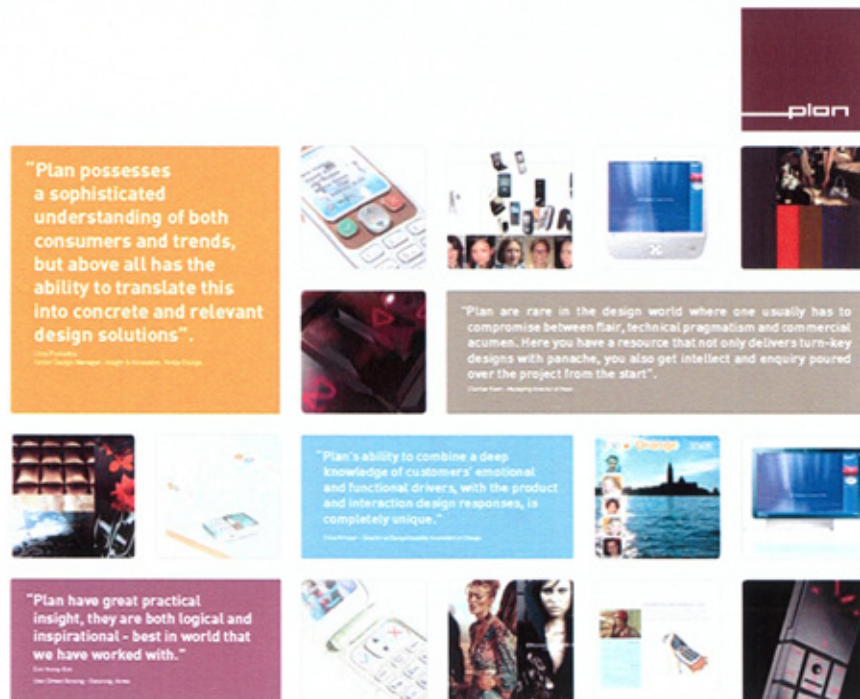
Together with Kevin McCullaugh, former director of Seymour Powell Foresight I founded Plan to further explore this thinking:

Plan is a product experience consultancy, we consider the key consumer encounters with your product, from packaging to interface.

We are good at getting our heads around knotty problems and producing tangible design outputs – from strategic frameworks to total experience concepts. We join the dots between style and substance. Being right and left-brain design thinkers, we develop product stories that synthesise a wide range of data, insights, ideas and assumptions.

In short, we help your team bring clarity to the front end of new initiatives.

For the past two years Plan has been working with a number of the world's leading brands in both Europe and Asia upon a variety of projects. The most wide-ranging being a global segmentation strategy, the resulting product experience propositions, included communications, product and packaging concepts. For another client we developed a European design language identity, which we took as far as product archetype models.





Samsung Design Europe. Sept 2000 - Feb 2004

My role at Samsung design Europe was to provide Samsung with a world class design resource delivering expertise in product design, interaction design, graphic design and visual strategy.

I was responsible for the overall strategic design direction of the office, the communication of this vision to Samsung HQ in Korea, setting briefs, managing projects, managing suppliers, delivery of projects, on time and within budget and the final presentation of this work to Samsung management in Korea.

We worked upon a wide range of projects ranging from simple re-styles of existing products, to large-scale strategic design explorations giving Samsung insight into the products they should be creating to satisfy the needs of global consumers in 2005 and beyond.

We worked upon a wide range of product typologies, from small mobile devices and home theatre products, to large domestic appliances like refrigerators and air conditioners.

With each of these projects I tried to create a close working relationship with the Korean designers so their product specific expertise could be combined with the raw creativity and European sensibility of the Samsung design Europe team to create unexpected, unique and appropriate design solutions.

During my time at SDE the studio won a number of international design awards including 2 IDSA awards in America, an IF award in Germany and a Good Design award from Japan.



Design Awards



British Airways Club Class Seat

Design Effectiveness Award - Category and Grand Prix winner
D&AD awards 2000 - shortlist
Good Design Award (Japan)
ID Magazine Annual Review
IF Award 2000



Compact - concept Mobile Phone Handset

ID SA - Bronze Award



SGH X800 - Mobile Handset

Design Week Awards 2004 - Shortlisted
IF Award 2004



Ink-Jet Printer

Design Council Innovation Stories - case study

Achievements

Awards Judging	D&AD Design awards 2001	
	D&AD Student awards (advisor and Judge)	
	Design Week awards 2004	
Teaching	Ivrea institute of Interaction design - Lecturer and examiner - 2006 - 06	
	Selected Journalism	Press
	IDSA Journal. (Summer 2002) Global Localisation (co-author)	Smart Product that change our lives. Clive Grinyer 2002.
	Design Council (UK). (retained) Design for export markets	Electric dreams. David Redhead, 2004
	ICON. (Nov 2003) A Sea of Banal Ugly Objects	NewDesign (May 2005) Man with a Plan - profile
	Design Management Journal. (2003) Digitall (co-author)	Financial Times (Feb 04) Seoul's men in London
	Design Week Face value. (15 April 04) Tool Up. (9 Sept 04) Production line poser. (15 June 06) Final touch. (22 June 06) Alessandro Finetto. (27 July 06) 20 years on. (September 06)	
	Mobile handset analyst iPhone (Jan 05)	

2.3 – Les Stokes

Leslie Stokes Dip AD, MDes (RCA), FCSD

Educational

1973 – 1976

Royal College of Art MDes (RCA)

Braun Prize-winner

1970 – 1973

Newcastle-Upon-Tyne Polytechnic Dip AD 3D Industrial Design (Eng)

RSA Travelling Bursary Prize

1969 – 1970

City of London Polytechnic

Foundation Course

Professional

2005 – Main board Director, BDI (British Design Innovation)

1981 –

London Associates Product Designers

Partner

1976 – 1981

London and Upjohn, Industrial Design Consultants

Product Designer

1976 – 1979

Hertfordshire College of Art and Design

Part-time Lecturer in 3D Design

Notable

2008 Membership of Licensing Executives Society

2007 Three DBA Design Effectiveness Awards (inc. Grand Prix award)

2006 Speaker at the Global Design Summit, London

2003 External Examiner, University of Northumbria

2002 Speaker at Design for Business Seminar, Guangzhou, China

2000 Speaker at TCT Conference, Cardiff

1990 British Design Award

1989 FCSD

1981 MCSD

Client Examples

Kodak, Avaya, Chubb Security, Invacare, Perkin Elmer, Trafficmaster, De La Rue, TDK, Philips Scientific, Mobilis Healthcare, Novar Systems, Markem etc.

Personal Statement

I have been involved with Product Design Consultancy work for over 30 years working in the UK, Europe, USA, Africa and the Far East. This has resulted in a great deal of experience of the design and development process, along with the more strategic use of product design as a business tool. My role with London Associates still involves product design but is increasingly focussed on the methods for identifying product opportunities and developing a company's brand through their products, services and product ranges.

I am comfortable with discussions at board level and believe that the future for design lies in influencing key decision makers and changing the perception of the discipline from a 'skill based commodity' to an integral part of business development.

I believe in the concept of 'collaboration' and London Associates have clients with whom we have worked for more than 20 years.

London Associates have received many design awards, including a British Design Award, Seven International Design Effectiveness Awards and countless Industry Awards. We describe our business as – "Connecting technology, people and commercial opportunity through innovative brand supportive solutions". It is the ability to 'connect' that differentiates our approach from that of the product stylist. Our definition of design is 'creativity in context' and we understand the different approaches required when working with 'lifestyle', 'professional' and 'industrial' products.

The design business has always been based on people and personal relationships. Our track record demonstrates strengths in the areas of communication, integrity, durability and reliability.

2.4 – Adrian Stokes

CURRICULUM VITAE

NAME

Adrian Stokes

Fellow Chartered Society of Designers
Fellow of the Royal Society of Arts
Member of the D&AD
Member of the Livery of the Worshipful Company of Furniture makers
Freeman of the City of London

BORN

9.12.52

CAREER DETAILS

73/74

Derby College of Art, Foundation Studies, Distinction

74/77

City of Leicester Polytechnic
BA 1st Class Honours Industrial Design Engineering

Institute of Marketing, Certificate in Marketing.

77/78

DCA Design Consultants, Warwick

Position: Design Assistant

Project	Hand tools	- Stanley Tools Ltd
Work:	Helmet	
	Microphone	- Ministry of Defence
	Gas Regulator	- Calor Gas
	Telephones	- British Telecom

78/84

Fether & Partners, London

Position: Designer
Senior Designer
Partner 1981 >84

Project	Merchandising System	- John Lewis Partnership
Work:	Housewares	- Prestige
	Uplighter	- Best and Lloyd
	Paint Pump	- ICI Paints
	Packaging Concepts	
	Plastic Pain Containers	
	Moulded Luggage	- Samsonite
	Glue Dispensers	- Loctite Ltd
	Catalytic Glue Gun	
	New Product Concepts	- O.B.O.
	Office Furniture Programme	- Office Kit
	Screen System	- William Plunkett Furniture
	VDU Workstation	- Whitechapel Computers
	Modular Vehicle	- Smith Industries
	Instrumentation	
	Flat Pack Furniture	- Homepac
	Giftware Products	- Dunhill
	Vending Machines	- Klip (Mars)

84 To date

Private Practice, ASA Designers Ltd

Position: Principal

Project Work:

Colour Monitor
Flat Screen Portable Computer
Domestic Alarm System
Information Terminal
Water separator
Shower Heater
Speaker Cabinets
VDU Range
Linear Lighting System
Task Light Programme
Office System
Executive Chair
Design Director retained to advise on all aspects of design policy

- Whitechapel Computers

- Gillroyd Electrical Products
- Public Access Terminals
- C T Harwood
- Faco Electric (Singapore)
- Emilar International
- Vistek Electronics
- Lightform Special Projects
- Steekcase Strator

- Artifort
- Gordon Russell Furniture

Products Designed at asa designers limited:

Screen System
Conference Chair
Thesis Table Programme
Axis Executive Office Furniture
Prism Table System
Showroom Scheme
Exhibition Design

Office Chair Range
Orthopaedic Office Chair
Cable Management System
Printer Unit
Kitchen Furniture
Banking System
Moulded/Softside Luggage
Broadcast Equipment
Reception Seating System
Office System/Executive Furniture
Audio Equipment
Drinks Dispenser
Navigational Equipment
Wind Up Torch
Screen Systems
IFE Telephone Handsets
Laptop/Handheld Computers
HiFi Separates/Speakers/AV Products
"Pleats" packaging
Bathroom Products
Information Terminal
Office System
Retail Display Products
Airport Barrier System
Aircraft Lighting System
Remote Controls

- Giroflex
- Medesign
- Office Kit

- Texas Homecare
- Killby & Gayford/Natwest
- Carlton International Plc
- Broadcast Developments
- Interstuhl
- Office Corp Ltd
- Naim Audio
- Sodastream
- Raytheon Autohelm
- Baygen Power
- Screen Solutions
- Rockwell Collins
- Lago Systems/MOD
- Arcam Ltd
- Issey Miyake
- Ideal Standard
- London Transport
- J F Knott & Co
- Tensator Ltd
- Tensator Ltd
- Boeing Aircraft Company
- Universal Electronics

Office Storage System
Board Room Table System
Screen System
Aircraft Wireless Power Supply
Telephone Range
Medical Laser
Washroom Concepts
Housewares Range
PDA Device
Point of Sale Equipment
New Luggage Range
Radios

- Herman Miller
- Rolls Royce Motor Cars
- Arenson Group
- STG Aerospace
- Ascom
- Diomed
- Rentokil Initial
- Marks & Spencer
- Loc8tor Limited
- Ralph Lauren
- PMC (Singapore)
- Roberts Radio

Major Press Coverage	Office Stack-Up	- Design 1981
	Carson's Kit	- Mobilia 1982
	Britain's Bright Hopes	- Engineering 1984
	Designing the Terminal	- Design 1985
	Adrian's Army "Profile"	- Designer 1986
	Perspective	- Blueprint 1986
	Gordon Russell	- Interior Design 1987
	Debunking the Office Chair	- Design 1987
	Russell Revival	- Design Week 1987
	Stokes Blokes "Profile"	- Designers' Journal 1988
	Executive Furniture	- Designers' Journal 1990
	Design Brief	- Design 1990
	Telephone	- Design 1993
	Cover Story Carlton Luggage	- Design Summer 1995
	Practice Profile	- Mix Interiors 2002
	Practice Profile	- DS Magazine (China)
	Ongoing features in national & international press relating to new products	
Articles	"Sitting Duck"	- Design Week, Aug 90
	Review	- Design Week, Feb 91
	"Power Packs"	- Design Week, June 91
	Book Review	- Design, Aug 91
	"Chairman's Report"	- Design Week, Aug 91
	"Office Worker"	- FX magazine October 98
	"Improved Communications"	- C3 Magazine Aug 99
	"Is Anybody Out There"	- New Design July 2003
	"A View From The Inside"	- New Design February 2005
	"Education For The Masses"	- New Design July 2005
	"Are You Sitting Comfortably"	- New Design Dec 2005
	"For Love of Jargon"	- New Design June 2006
	"Margin for Error"	- New Design July 2006
	"Days of the Future Passed"	- New Design Sept 2006
	"Good Client-Bad Client"	- New Design Sept 2007
	"Inspired"	- Design Week January 2008
	"A Simple Phillipic"	- New Design February 2008
	"Losing the Art of Good design"	- New Design June 2008

This CV is a record of my own background and is not a comprehensive resume of the work of my studio ASA

1.5 – Steven Kyffin

KYFFIN Curriculum Vitae

NAME: Steven KYFFIN. Prof. M.Des RCA, FRCA, FRESA, MCSD, BA Hons,
ADDRESS: Sint Odulphusstraat 17 Eindhoven 5614 AN The Netherlands.
TEL & EMail: +31 0 6 234 656 72 steven.kyffin@philips.com steven@kyffin.com
CITIZENSHIP: British
DESCRIPTIVE TITLE: Design Research & Innovation Director; Strategic Alliances Manager; Creative Director; Industrial designer; Design Professor & Academic Strategic Consultant;

SKILLS: Integrator of Design, Social & Physical Sciences, Technology Research & Business Strategy processes towards the drive for company Growth;
Design Thought Leadership;
Alliance Management;
Global Program Direction & Development; Creative Direction;
Multidisciplinary Project Management; Knowledge Management; Industrial, Interaction & Communications Design; Academic faculty and curriculum dev., Team building & leadership; Business Account Management; Global Design Business management; International working experience; Design Research Conference Visionary, Program Chair & Reviewer; Public speaking; Scientific Paper writing; PC & MAC literate;

CAREER AIMS: To build a shared vision and mission and to direct the Corporate Design led Innovation processes as an integrated & collaborative strategic partner (Business & Marketing, Socio-Cultural, Technology) within the business development and product/service creation processes. To drive development of the "Brand" personality and to enable its effective articulation through the design, delivery & communication of the product service mix. To contribute to thought leadership of the wider design discipline through design academia, research inst.'s and govt bodies.

PROFESSIONAL EXPERIENCE:

From Sept 1998 - currently **ROYAL PHILIPS ELECTRONICS, THE NETHERLANDS.**
Philips Design, CEO Office: Senior Global Director. Senior Creative Director
Design Research & Innovation. Reporting to CEO.
From May 2005 - currently **School of Design Royal Melbourne Inst of tech. (RMIT) Australia.**
Adjunct Professor. Reporting to the Dean of the Faculty of design.
From Nov 2004 - currently **School of Design University of Northumbria, United Kingdom.**
Honorary Professor. Reporting to the Dean of the Faculty of design.
From June 2004 - currently **School of Design Hong Kong Poly University**
Visiting Professor. Reporting to the Dean of the Faculty of Communication (HK)
From July 2003 - currently **School of Design Southern Yangtze University, Wuxi Shanghai.**
Visiting Professor. Reporting to the Dean & the Chang Design Foundation (HK)
From Sept 2002 - 2007 **ID faculty Technical University Eindhoven The Netherlands**
Chief Scientific Officer, Design Research & Academic Curriculum Consultant to
Director of Education Reporting to the Dean.
From Sept. 1988 - 1998 **KYFFIN DESIGN CO. LONDON.** Managing Director: Industrial design,
manufacturing consultants, Copyright and Patent Consultants. Japan & Europe based
clients.
From Dec. 1990 - 2002 **GLOBAL GOLF LINKS LTD. LONDON.** Design Director,
From Sept. 1995 - 1998 **ROYAL COLLEGE OF ART, LONDON.** Head of Department & Course
Director of Industrial Design, School of Arch. & Design,
From Sept. 1990 - 1995 Senior Tutor and Course Leader, School of Industrial Design.

EDUCATION:

1981-1984 **M.Des (RCA) Master of Design Degree, Royal College of Art, LONDON**
1977: 1981 **BA Honours Degree (First Class) Industrial Design, NORTHBRIA UNI. UK**
1989 **Member of Chartered Society of Designers.**
1991 **Fellow of the Royal Society of Arts.**
1995 **Fellow of the Royal College of Art.**

KYFFIN Curriculum Vitae

PROFESSIONAL EDUCATION:

2002 Strategic consultative selling, Philips
2000 Account Management, Philips
2000 People Management & Coaching, Philips
1999 Lotus Notes & Super Office, software training, Philips.
1999 Advanced Project Management, Philips.
1999 Introduction to Marketing and Sales, Philips.
1998 Microsoft Project, software training, Philips.
1997 Dyslexia workshop, RCA.
1997 Understanding and reducing stress, London Univ.
1997 Introduction to strategic planning & management, London Univ.
1996 Managing and developing effective teams, London Univ.
1995 Teaching for learning, personal tutoring workshop, RCA
1995 Models for personal appraisal workshop, RCA

OTHER:

Books Title: DeSForm Conference Proceedings 2005 & 2006. www.desform2006.id.tue.nl/
Title: Past Tense: Future Sense. CH. Design research. Publisher: BIS publishing. 2005
Title: NEW EVERY DAY. Views on Ambient Intelligence. CH. 7.3 Question of Design.
Publisher: 010 publishing, March 2003 Philips authorship. ISBN number 90-6450-502-0
Title: UNDERSTANDING FORM. A virtual guide. Publisher: QUARTO publishing. In progress.
Sole authorship. ISBN number..In progress
Recent Authored Articles in journals 2005: DPPI: Designing Pleasurabele products and Interfaces keynote.
DeSForm:

Reviewed Paper: Philips Design NewValueNewswww.design.philips.com/About/Design/new_valuebyOneDesign/Section-13834/Index.html HOIT2005. Title: Exploring expression of form, action and interaction. Kyffin, S., Feijs, L.M.G., & Djajadiningrat, J.P., Philips Apptech PACT Feb., The nature of the New Things in the world of Objects.
2004: Title: Freedom of fun, freedom of interaction. Interactions Magazine, sept + oct, Wensveen, S.A.G., Overbeeke, C.J., Djajadiningrat, J.P., & Kyffin, S.H.M.
2003: Designing Designers. Salone internazionale del Mobile . Industrial Design & designed intelligence Eindhoven. (Co. Feijs)

Recent TV & Web Interviews/broadcasts

Speaking engagements 2006: International Service Design Northumbria Key Note. Objects of Service: from & subjects to objects and back again: Interview Design & Emotion: Getting Emotional with Steven Kyffin: www.designemotion.com/2006/01/17/getting-emotional-with-stevenkyffin/
DeSForm Conference Opening Speech. 2005: HOIT York. SeMotion in Intelligent Object & Systems. Pact Philips. The nature of the new Objects. 2004: Philips software conference Key note. 2003: A Vision for Asia. HongKong BODW: A New Simplicity,Trends in design. Philips TASS: Delighting the Customer, PhResearch UI conf. SYTU Wuxi Design Workshop. 2002: Design & Displays; PhRes Colloquium. The fall of Stuff: Young Is Philips. 2001: Design Innovation; Philips Singapore. The new Modernity; Wuxi Design University Shanghai & ICT Kenniscongres 2001 The Hague.

Exhibitions held & Awards won.

2006 Philips CRE TODOSO Integrated Philips Experience
2005 Philips Central Research Ex. One Philips Vision: Designed around You award
2004 Philips Central Research Ex. One Philips Vision and Corp man't awards
2001 IDEA: PLANET/LIME: Silver Industrial Design Excellence Award
IDSA Concept Category
PLANET/LIME: Best of Category I.D. Magazine Annual Design

1.6 – Tim Brown



Tim Brown

Tim Brown is CEO and president of IDEO. Ranked independently among the twenty most innovative companies in the world, IDEO is a design consultancy that contributed to such standard-setting innovations as the first mouse for Apple, the PalmV, and Shimano's new Coasting bike. In addition to the design of new offerings for the world's leading brands, IDEO's work addresses emerging themes such as sustainability, the design of communities, health and wellness, and enterprise for people in the world's lower income groups.

Tim is a leading voice on the value of design thinking in business and society. His ideas and experience are widely sought in industry, academia, and the nonprofit community. He participates in the World Economic Forum at Davos, and at the last three forums he spoke in a series of sessions including the closing plenary in 2006. Tim advises senior executives of Fortune 500 companies on a variety of boards and committees, including the Board of Trustees for the California College of the Arts. Most recently, he joined the Advisory Council of Acumen Fund, a not-for-profit global venture fund focused on improving the lives of the poor.

Tim has led strategic client relationships with such companies as DaimlerChrysler, Microsoft, Motorola, Pepsi, Procter & Gamble, and Steelcase. He has received numerous design awards, and his designs have been exhibited at the Museum of Modern Art in New York, Axis Gallery in Tokyo, and the Design Museum in London.

In 2004, he received an honorary doctor of science degree from Art Center College of Design in Pasadena, California, and in 2005 he was named a visiting professor in design at the University of Northumbria, Newcastle, England.

Tim joined IDEO in 1987 after earning his MA in design from the Royal College of Art in London. He managed IDEO's San Francisco office from 1990 to 1995, and headed IDEO Europe from 1995 to 2000.

1.7 – John Thackara

Taken from: <http://www.thackara.com/cv.html>

Chronology, main points

1951 Born Newcastle Upon Tyne

1951-1969 Educated in Newcastle and Marlborough

1970-1974 University of Kent at Canterbury (Philosophy)

1974-1975 Centre for Journalism Studies (Cardiff)

1975-1978 Granada Publishing (Commissioning Editor Architecture)

1979-1980 New South Wales University Press, Sydney (Senior Editor)

1980-1985 Editor, Design, London

1985-1986 Modern Culture Editor, Harpers & Queen, Design Correspondent, The Guardian, Design Correspondent, The Spectator Correspondent, The Late Show (BBC)

1985 – 1992 Managing Director, Design Analysis International Limited (London and Tokyo)

1989-1992 Director of Research, Royal College of Art (London)

1993-1999 Director, Netherlands Design Institute (Amsterdam)

2000-2006

Steering Committee, Interaction Design Institute Ivrea, Italy

Scientific Committee, Interactive Institute (Sweden)

Expert Advisor, Hong Kong Design Task Force

European Commission Expert (Information Society Technologies)

Coordinating Group, Convivio (EU network for social computing)

Advisor, High Speed Train Network, (on 'quality time')

Member Virtual Platform (The Netherlands)

Board of Advisors, Form Magazine, Germany

Associate, The Young Foundation, London

2007-ongoing:

Director, Doors of Perception (Amsterdam)

Programme Director, Designs of the time (Dott 07), UK

Commissioner, St. Etienne Design Biennial 2008, FR

2000- : DIRECTOR, DOORS OF PERCEPTION

Interaction Design Institute Ivrea

I was a member of start-up team (and of the Steering Committee until the end of 2003) that established this new research institute in Italy.

Hong Kong Design Task Force

I was the expert advisor to the Hong Kong Design Task Force (chair: Victor Lo) which developed a new innovation and research policy for the Hong Kong Polytechnic University.

Design and Innovation Research Centre (DIEC)

Doors was in a consortium, Spirit of Creation, that developed the specification and blueprint of a new institution to be based in Newcastle in the North-East of England.

Convivio: a new vision for "social computing" in Europe

Doors was responsible for vision building in *Convivio* – an EU network for social

computing.

Virtual Platform

Doors of Perception served until 2006 as a member of this advisory group to Dutch government on new media cultural policy.

Quality time at high speed?

(May 2004) What would it mean to design for fast *and* slow speeds? Workshop for High Speed Network Platform, an association of 15 European regions, and Urban Unlimited, a planning firm.

Design and local knowledge

(May 2004) A service design project in response to the question: when traditional industries disappear from a locality, what is to take their place?

Amsterdam Medical Centre (AMC)

I was a member until the end of 2004 of a four person think-tank developing concepts for its Director of a next-generation national childrens hospital.

Creative Communities (Emude)

I was the advisor to a European consortium led by Ezio Manzini building a network of project observatories to track examples of social innovation using ICTs.

In Scotland, a design clinic for entrepreneurs

Design scenario workshops for The Highlands and Islands Development Board, in Scotland.

Schiphol Airport: “Air-To-Farm”

Service design workshops for the Board of Schiphol Airport, with Urban Unlimited.

For 1000 professors – life in the learning economy

How will we learn when knowledge changes so fast? Doors of Perception organised a three-day conference with Caroline Nevejan and Mediamatic.

Director, Netherlands Design Institute 1993-2000

Highlights

1999 Presence – European project on elderly and internet Maypole - European project on social computing Trespassers - publication on design scenarios for sustainability Wisselstroom 2 - design scenarios for transport intersections Kust op de Kaart - website & knowledge map of coastal projects If/Then - publication of "yearbook of the near future"

1998 *Doors of Perception 5 - "play"* O2 Website - for eco-designers worldwide *Lightness* – book + lectures *Young Designers and Industry* 18 European companies + scenarios From Practice To Policy - new media conference with Virtual Platform

1997 *Design In The Knowledge Economy* - seminar series *The Flat Space 2* - screen design futures European Design Industry Summit European Design Prize *Winners!* - book published *Wisseltroom* - design scenarios for the future of mobility *Eternally Yours* – conference and book on long-life products

1996 *World Internet Expo: Dutch Pavilion Doors of Perception 4 - "Speed"* *Legible City* - conference on cities and information *Things That Think* : design/business workshops on smart materials *Doors of Perception 4 - 'Speed'*

1995 *Doors of Perception 3- "Info-Eco"* *The Flat Space* - exhibition and CD Rom of design for electronic screens *The Prototype*- workshop series *From Dada To Data*, conference, with Virtual Platform & Council of Europe

1994 European Community Design Prize (with EU) European Design Industry Summit (with EU) *Design Across Europe* - report on the European design industry *Toshio Iwai: Media Artist* - exhibition for opening of Institute's building *Action-Reaction* - exhibition in Japan *Doors of Perception 2 "Home" Smart Matter* - smart materials seminar, with Stedelijk Museum

1993 *Tomorrow's Literacies* - lectures and exhibition at Frankfurt Book Fair *Eternally Yours* - conference and book on product endurance *The New Old* report and conference (with UK DesignAge Network) *Materials of Invention*: seminar series and book *The Cultural Economy Of The Applied Arts* - report *Design And The Culture Industries* - international professional meeting *Doors of Perception 1*: plus DoP CDRom

1985-1992 Director Design Analysis International

1988-1992 Director of Research, Royal College of Art

Asahi Shimbun (Tokyo) 1987 International symposium on science, innovation and design, with Itsuo Sakane.

Axis Gallery (Tokyo) 1987 An exhibition of 'live prototypes', called *Leading Edge*, in which 40 designers created prototypes with support from manufacturers. Shown in Tokyo and Osaka .

European Commission (Paris) 1989 *Interactivity and Environments* (Paris and Inverness) 1989 Centre Europeenne de Technoculture international conferences, with University of Paris VIII

Centre Pompidou, Paris 1989 *Image and Object - Nouveau Design de Londres* featured in the Centre Pompidou exhibition and catalogue series 'The Avant Gardes of Europe'. With Japan Airlines.

Alfred Dunhill Limited London and Klondike 1989 *The Englishman's Companion* Exhibition for Dunhill on its 80th anniversary; curated by Jonathan Glancey and designed by Nigel Coates

British Medical Association, London 1989 *Mirror of Medicine* Exhibition for the 150th anniversary the British Medical Journal; curator Peter Dormer

British Broadcasting Corporation 1990 Research and commentator on the BBC Design Awards programmes in 1990, 1992.

Architectural Association, Brussels and London 1992 *T-Zone* Exhibition of

Japanese architecture and video, with Riiche Miyake, also at the Tramway Gallery in Glasgow.

Mitsui, Tokyo 1991 *Crafts In Architecture* A series of exhibitions for architects on such topics as hand-made paper, and textiles. Produced with Peter Dormer

Foreign and Commonwealth Office (Vienna, Leipsig, Turin, Brussels) 1992 *The Inventive Spirit*, a touring art, technology and design exhibition, was a Brussels centrepiece during Britain's six-month EC Presidency. Peter Dormer curated.

Victoria and Albert Museum London 1992 *Sovereign* Research and procurement (in ten months, from start to opening) of the national exhibition at the to commemorate The Queen's 40th anniversary as sovereign. Designed by Pentagram.

1.8 – Sean Blair



Sean Blair An energetic, creative, strategic, participative leader.
An inquiring mind with a passion for design and enterprise,
in the context of new enlightenment thinking.

Education

- | | |
|-----------|---|
| 2000-2003 | <i>Bath University, studied</i>
-MSc Responsibility in Business Practice |
| 1997 | <i>Kellogg Business School (Chicago, USA)</i>
-Executive Development Programme |
| 1992 | <i>Kellogg Business School (Chicago, USA)</i>
-Strategic Business to Business Marketing |
| 1989-1990 | <i>Durham University Business School</i>
- Graduate Enterprise Programme |
| 1985-1989 | <i>Newcastle Polytechnic</i>
- BA (Hons) Design for Industry - 1st class honours |
| 1984-1985 | <i>Loughborough College of Art and Design</i>
- Foundation Course |

Non-Executive Appointments

- | | |
|------|--|
| 2003 | <i>Trustee of RSA</i>
http://www.rsa.org.uk/fellows/sean_blair.asp |
| 2002 | <i>Member of the Mayor for London's Creative Industries Commission</i>
http://www.creativelondon.org.uk/server.php?show=conWebDoc_78 |
| 2001 | <i>Honorary fellow in Enterprise at Durham University</i>
http://www.dur.ac.uk/dbs/faculty/staff/profile/?username=vs000025
http://www.dur.ac.uk/dbs/about/contact_us/staff-alpha/?id=2160 |
| 2000 | <i>Member of RSA Council</i> |
| 1996 | <i>Member of Business Link Accreditation Advisory Board</i>
http://www.dti.gov.uk/ministers/archived/roche081097.html |
| 1994 | <i>Member of Design Council council</i> |



Career

2005-2007 **Consultant**

Working with DFES Innovation Unit on a variety of projects, seeking innovative 'Next Practice' in secondary school education.

Working with the University of the Arts London on their information strategy, web strategy, student experience strategy, and re-designing internal working practices.

2003-2005 **Founder & director – Spirit of Creation (www.spiritofcreation.com)**

Spirit of Creation developed and codified a Service Design methodology, in increasing use in the public and private sector.

1999-2003 **Founder & Director of Nowhere Group (www.nowheragroup.com)**

Nowhere Group grew to become a group of 6 companies working in innovation consultancy, culture change, product and communication design, as well as a not-for-profit research organisation, the Nowhere Foundation, that undertakes research into 'creative consciousness'.

2000-present **Research Nurturer - University of Northumbria**

Working in the centre for design research establishing the 'Design Praxium', a radical new design school.

1995-1999 **Design & Communication Director - Design Council**

The Design Council's first Design Director, responsible for a budget of £1.2m, and 12 staff.

1989-1995 **Visiting Lecturer University of Northumbria**

Working as a final year tutor and on the exam board.

1989-1995 **Founder and principal - octo design (www.octodesign.co.uk)**

Established the North's most successful Industrial Design Consultancy.



Teaching & Lecturing

Delivered lectures and presentations at arts and business universities and organisations in UK, USA, South America, Malta, Romania, on various aspects of Design, Business, Innovation & Creativity

Other Honours

1986-88 Selected to join RAF's University Air Squadron - soled in 9 hours
1987 – Awarded RSA Design Bursary
1988 – Awarded First prize 'Student Lighting Designer of the Year'
1990 – Awarded UK's Young Entrepreneur of the Year in Shell 'Livewire' Scheme
1991 – Awarded Northern Business Award
1992 - Made documentary with BBC2
1994 - Invited to present RSA Student Bursaries to 180 winning students
1998 – Chaired 'Where' – The Future Starts Here RSA Lecture
2000 – Invited to Chair Romanian National Innovation Awards

Interests

Rock Climbing – Have climbed in UK, Europe & USA – including ascent of 3500ft El Capitan, Yosemite.
Scuba Diving, Photography
Cooking

Contact details

Address

15 Canal Building, 135 Shepherdess Walk, London, N1 7RR

Telephone

07802 773307

E-mail

seanblair@mac.com

APPENDIX C - Participants' Permission

Evidence of the participants' permission to be named and for the material to be quoted in the thesis

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3.1 – Example of the letter requesting permission

Dear Kevin McCullagh,

Thank you for participating in an interview on the 18th January 2006 as part of my PhD research project. I submitted my thesis late last year and passed my viva in February this year. Currently I am working on thesis amendments to satisfy the examiners' conditions for awarding the degree. Completing these amendments requires that I make two requests: the first asks for permission to use your name in the thesis and quote you using excerpts from the interview's transcript; the second asks you to provide a summary of your educational and professional past and your current professional activities. I hope that neither of these requests is too intrusive.

I have attached a transcript of our interview. The first half of the document, which will be contained in the thesis appendix, is a verbatim transcript of our interview with highlighted sections indicating how the full transcript will be edited. The second half presents the edited form of the interview, which will be published in the main thesis. Could you please confirm that you are happy to be quoted and referenced as the author of this material?

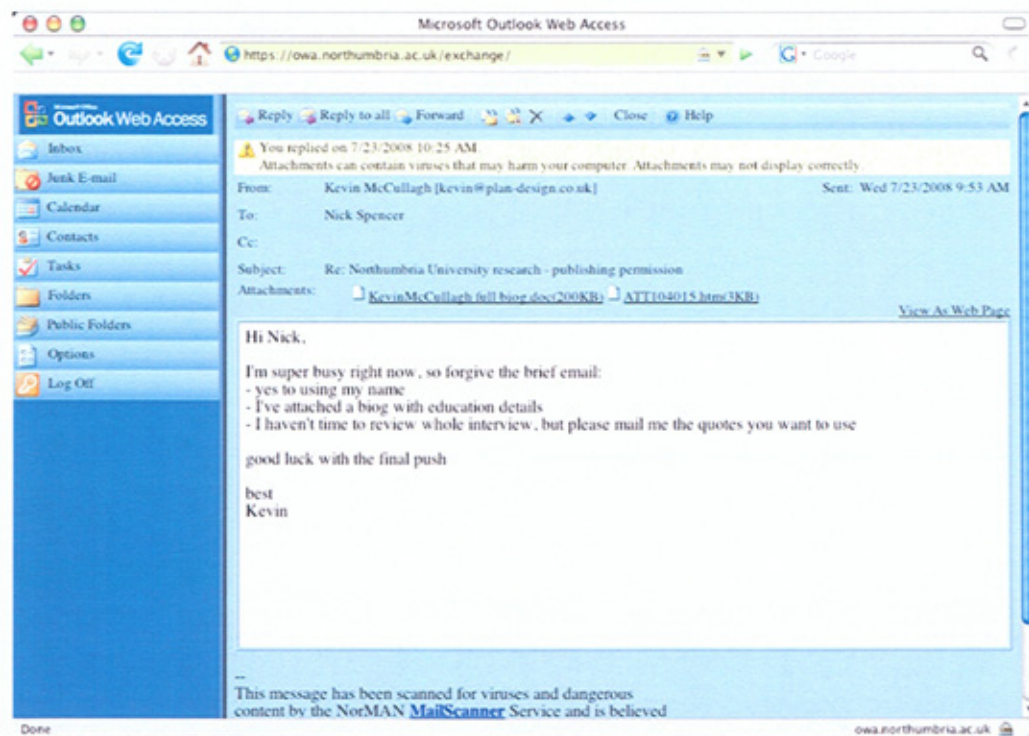
My examiners have requested that I provide some factual information (educational and professional) about each of the interviewees. It would be most kind and appreciated if you could provide a curriculum vita.

For your interest, I will email a copy of the finished thesis to you, I anticipate that the process should be completed and the thesis signed off before Christmas. I think there are some stimulating conclusions to come from the research and it would be interesting to hear your views on the thesis' claims.

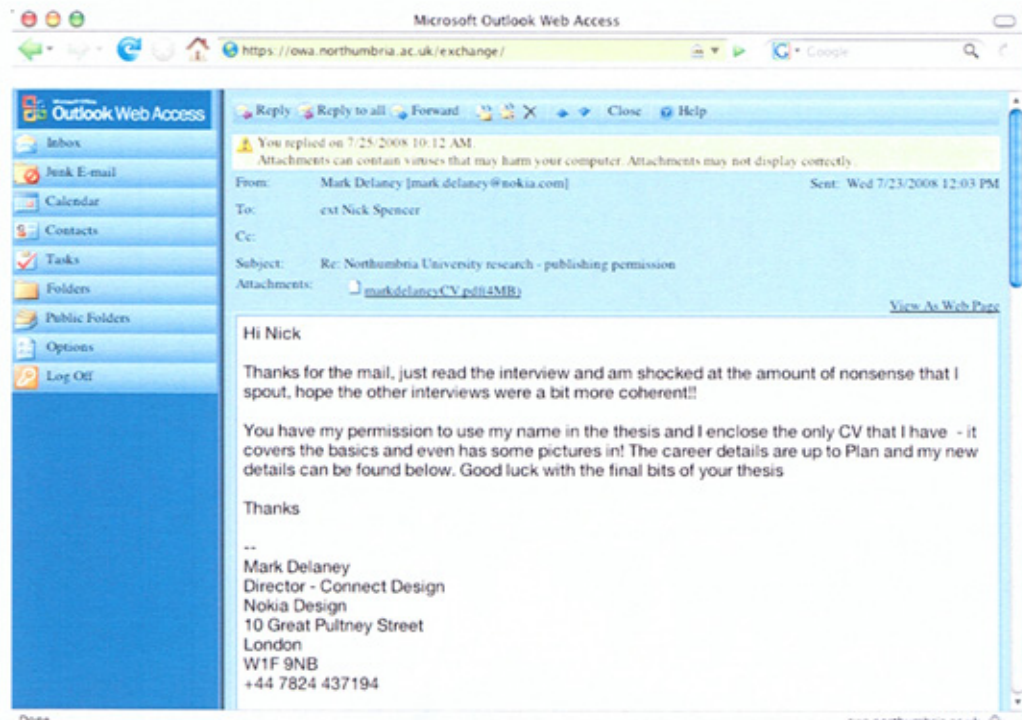
Best wishes and kindest regards,
Nick Spencer

Senior lecturer – Design for Industry
Northumbria University
Newcastle Upon Tyne
NE1 8ST

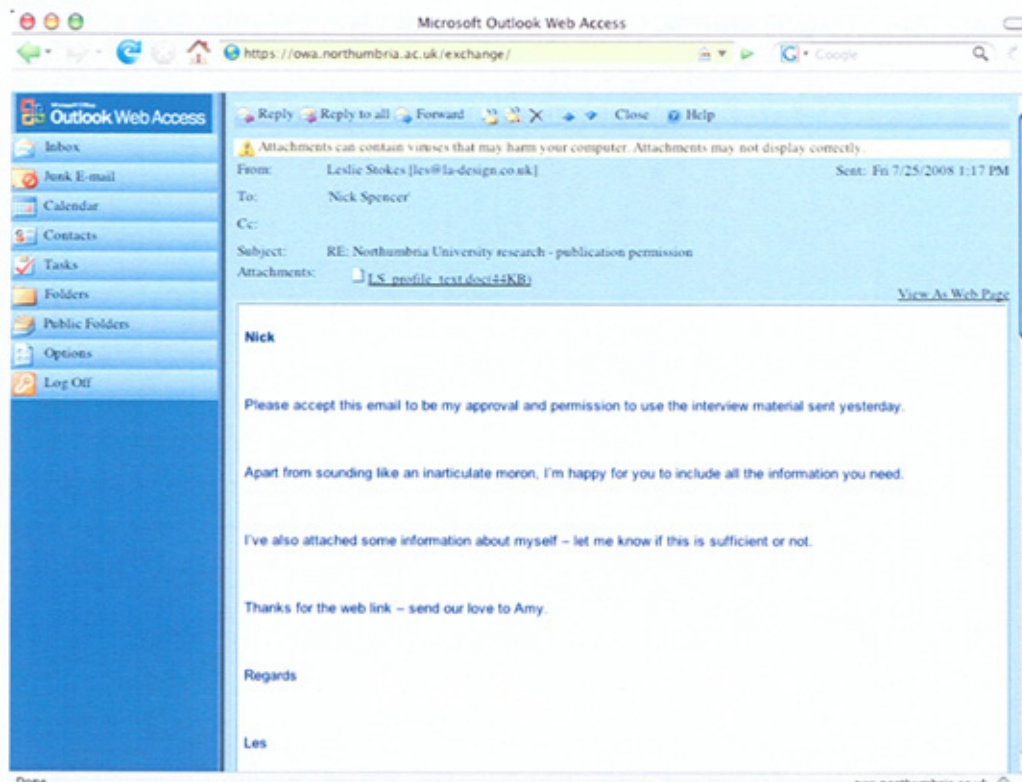
3.1 – Kevin McCullagh



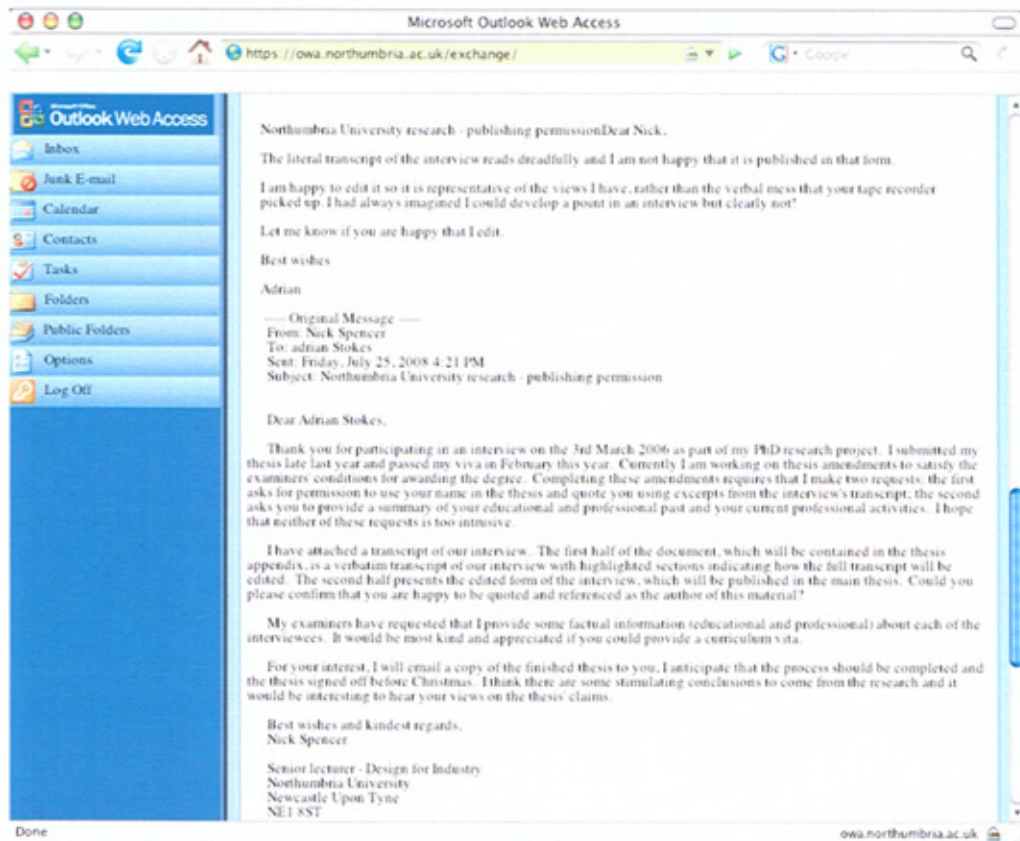
3.2 – Mark Delaney



3.3 – Les Stokes

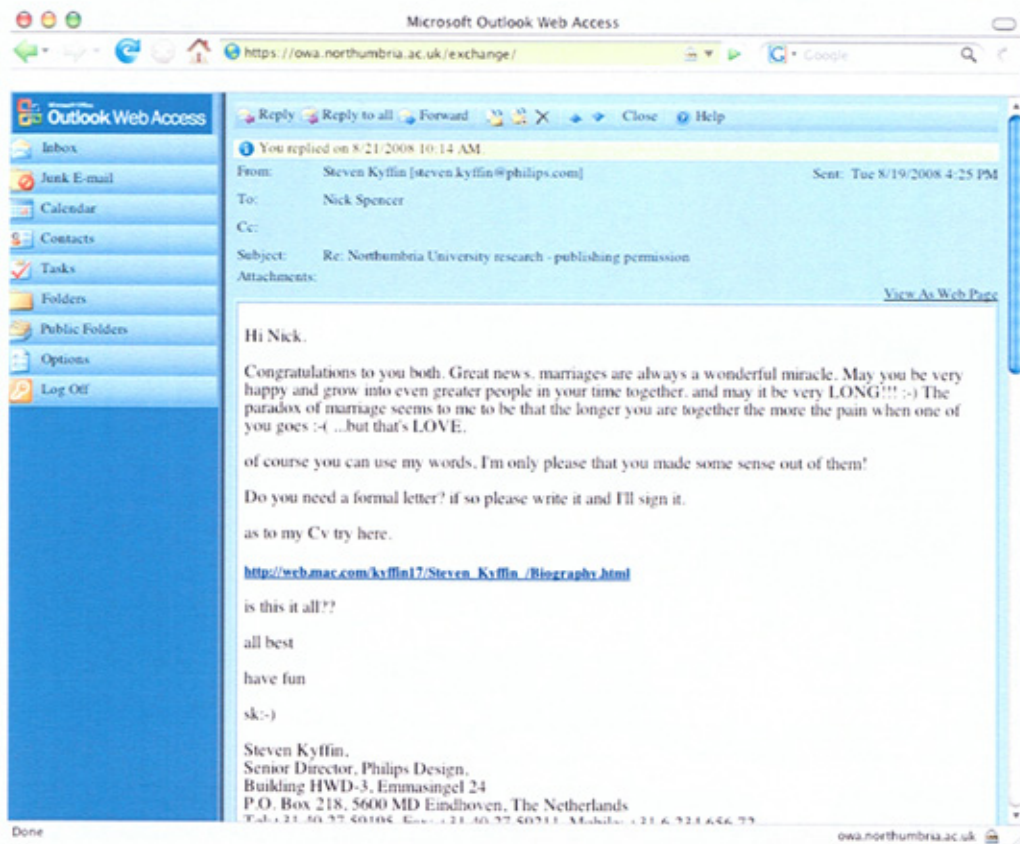


3.4 – Adrian Stokes

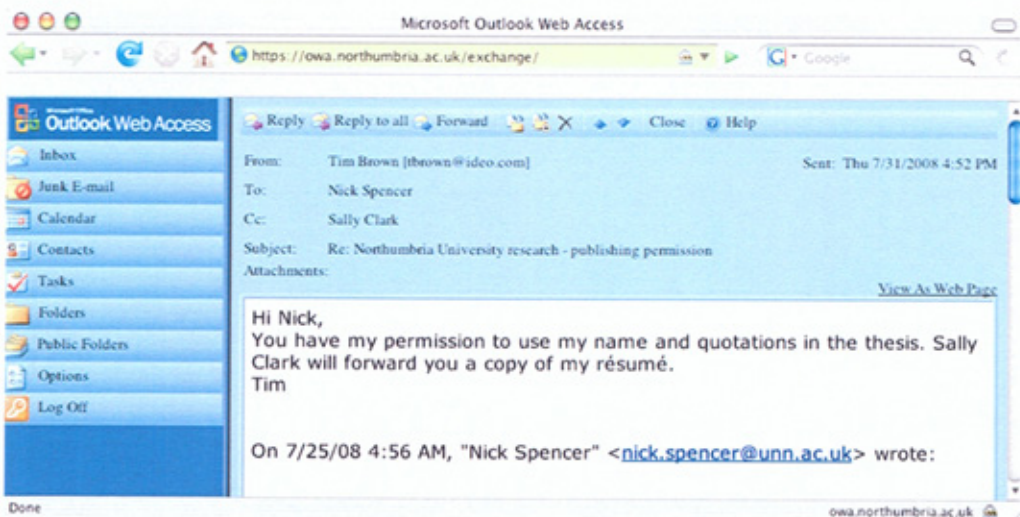


Adrian Stokes has edited the interview transcript and is happy for this to be used and for the material to be quoted as representative of his views.

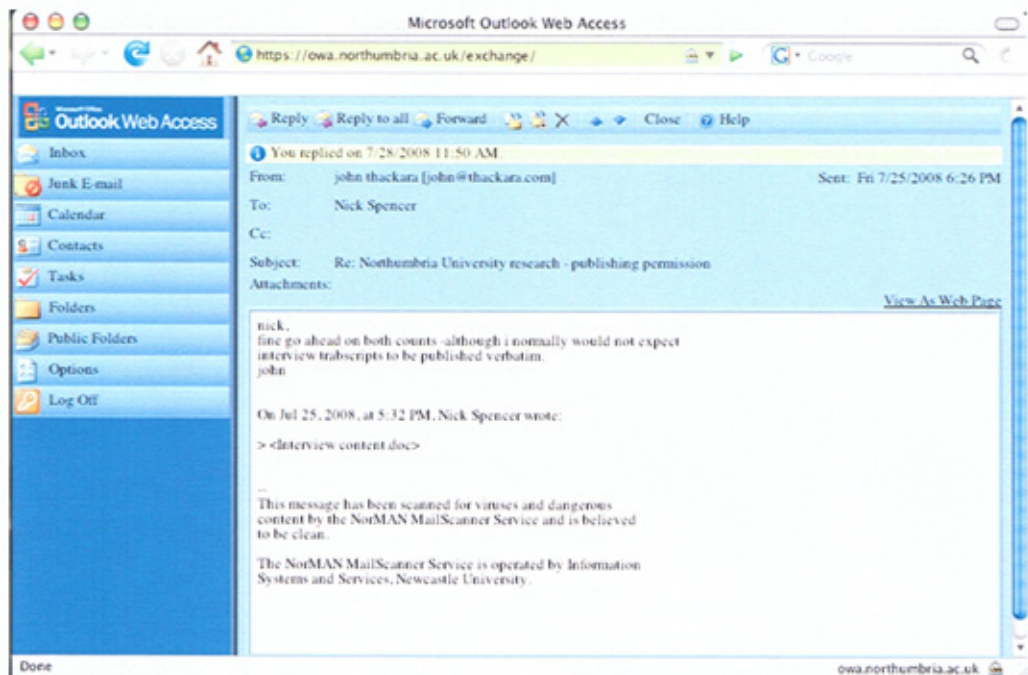
3.5 – Steven Kyffin



3.5 – Tim Brown



3.7 – John Thackara



3.8 – Sean Blair

